

textile

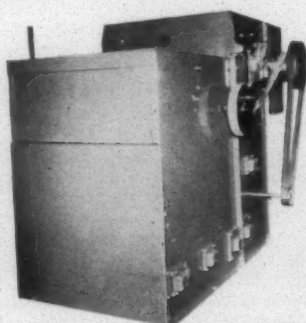
AUGUST • 1948

bulletin

The in-feeding of textile employees through plant restaurant facilities is gaining momentum. M. J. Rady discusses this subject starting on Page 37.

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THE WHITEHEAD NO. 1 BLENDING FEEDER

Machine is made of 10 gauge steel, power cut and welded, is smaller than any other machine of similar production capacity, equipped with fully enclosed self-aligning "Oilite" bearings.

Slip type removable inspection plates permit easy cleanout of waste from around shafting and between aprons.

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CHARLOTTE, N. C.

TEXTILE BULLETIN is published monthly by Clark Publishing Co., 218 West Morehead Street, Charlotte 2, N. C. Subscription \$1.50 per year in advance, \$3 for three years. Entered as second-class mail matter March 2, 1911, at Postoffice, Charlotte, N. C., under Act of Congress, March 2, 1897.

1896



When goods were transported by ox cart instead of by high speed motor van, one of the most progressive mills of the day received the new Draper Automatic Loom pictured above. They had become convinced of the practicability of this radically different Loom. The report that a Weaver could tend 16 instead of 4 appealed to them as a practical way of weaving more cloth at less cost.

Today, with Weavers running 100 looms on many cotton weaves, and up to 50 on rayon weaves, the Draper Loom is still the most productive and the most economical.

Established
1816

Draper Corporation

Incorporated
1916



A Complete Financial Service

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Fred'k Viator & Achelis, Inc.
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Where There Is A Possibility
of
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Southern Textile Exposition
in
Greenville, S. C.
Oct. 4th to 9th, 1948



The points indicated are worth close study and checking by every mill man.

The potential savings to you are great.

If you would care for one of our local Field Engineers to check with you, do not hesitate to call upon them.

Your Production Deserves Such A Check Up.

STEEL HEDDLE MFG. CO.

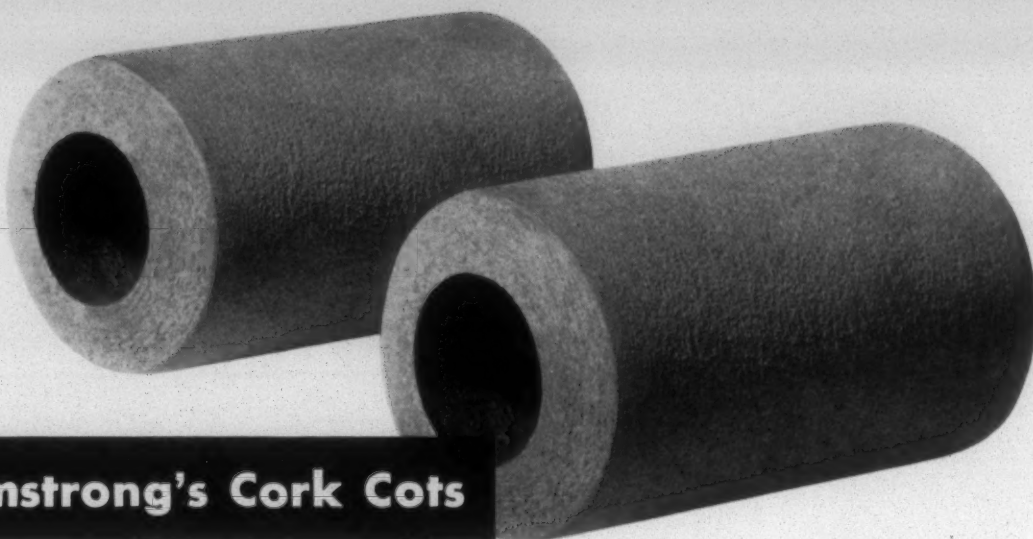
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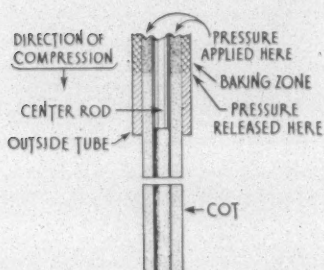


Armstrong's Cork Cots

DRAFT UNIFORMLY—WON'T SLICK

EXTRUSION PROCESS PRODUCES

SEAMLESS CORK COTS



Armstrong's Extruded Cork Cots have no structural weakness to cause premature breakdown. Each cot is uniform in density from inside to outside, from end to end. Each compresses evenly, spins stronger yarn, lasts longer.

The seamless surface of Armstrong's Cork Cots grips the yarn evenly. This surface won't slick up because cork, with its many-sided cells, keeps its high frictional properties over long service periods. Thus you consistently get uniform drafting and top-quality yarn.

Cork's high coefficient of friction eliminates eye-browing, too. Armstrong's Cork Cots reduce clearer waste as much as 50%—and place waste well back on the clearer boards. This means cleaner work, less clearer picking.

Armstrong's Cork Cots are also exceptionally resilient. They recover quickly from most laps or hard ends. They give you fewer ends down per thousand spindle hours, so your operators do less piecing up. They won't flow under roll weighting.

Low in first cost, Armstrong's Cork Cots have a long initial service life. When they do show wear, they can be rebuffed for 3 or 4 extra service lives.

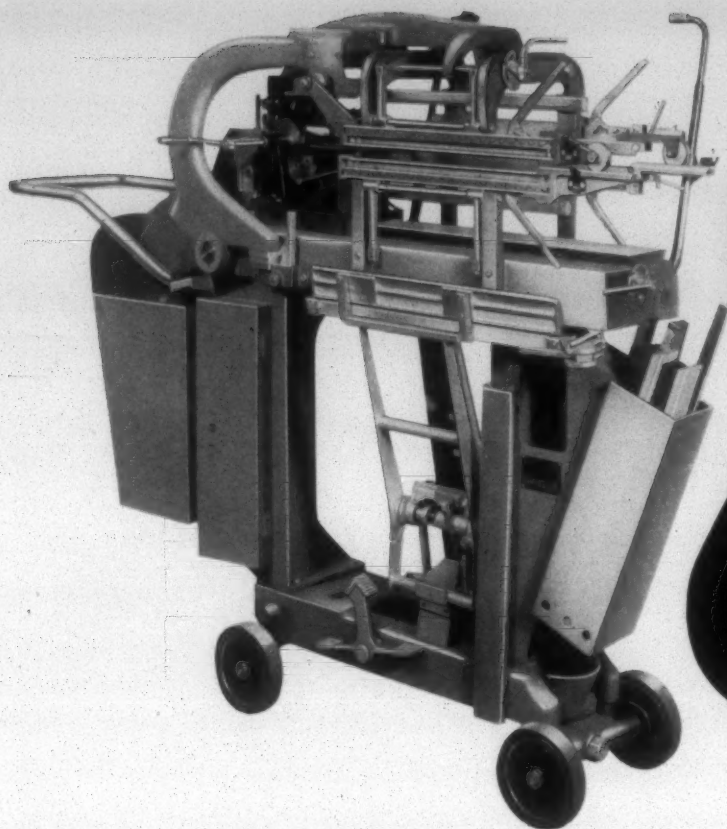
Ask your Armstrong representative for samples, prices, and complete information. Or write today to Armstrong Cork Company, Textile Products Dept., 8208 Arch St., Lancaster, Pa.



ACCOTEX IS A REGISTERED TRADE-MARK.

ARMSTRONG'S CORK COTS

ACCOTEX COTS • ACCOTEX APRONS



BARBER-COLMAN

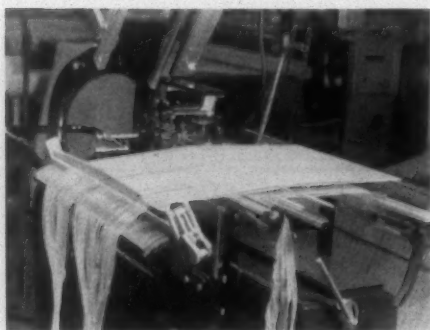
MODEL "LL"

Portable
**WARP TYING
MACHINE**

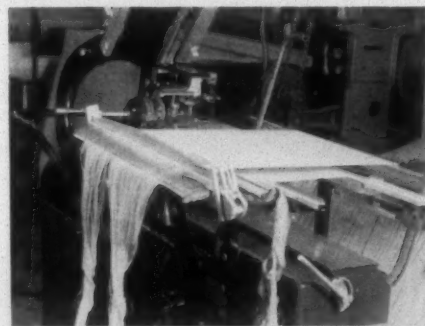
**THIS "UNIVERSAL" MACHINE TIES IN EITHER PLAIN
OR LEASED WARPS WITH EQUAL SPEED AND EFFICIENCY**

Under the conditions of modern styling, many mills need versatile equipment to handle frequent changeovers between filament and spun synthetic yarns. The Barber-Colman Model "LL" Portable Warp Tying Machine is extremely useful under such conditions because of its adaptability. It is a combination machine, with interchangeable selector mechanisms to

select from either an end and end lease or a flat sheet. A trained operator can make the necessary changes in less than ten minutes. The production rate when tying from an end and end lease is the same as when tying from a flat sheet. Under average conditions, a good operator can tie up to 4000 ends an hour, or better. This machine is particularly valuable in mills where both flat and end and end leased warps are coming through, and where the use of separate machines is not justified as they would not be utilized to their fullest capacity.



The same machine as above, but now loaded for tying-in leased warps, as shown by the lease rods.



Barber-Colman Model "LL" Portable Warp Tying Machine set up to tie in new warp from a flat sheet.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • DRAWING-IN MACHINES

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and in addition this important extra advantage

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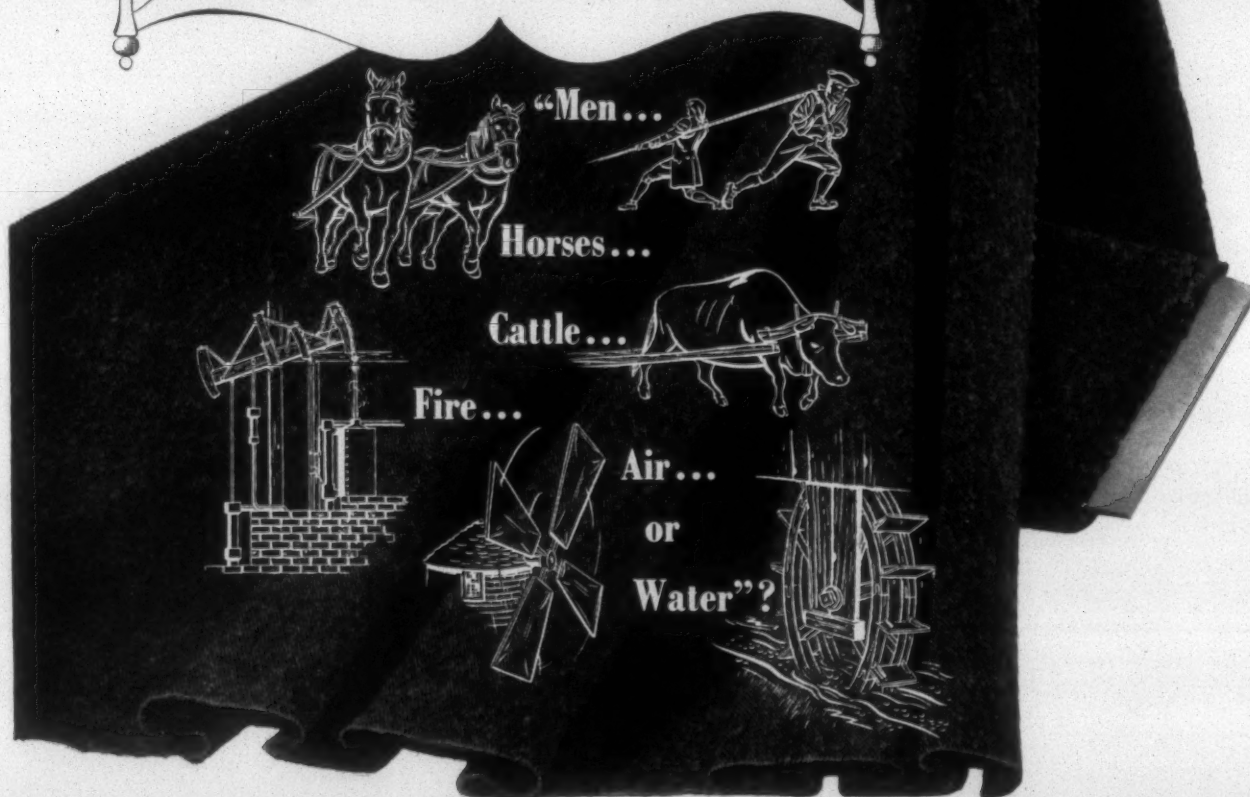
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Manufacturers of Chemicals including Plastics • Synthetic Insecticides • Fungicides • Enzymes • Detergents
Germicides • Chemicals for the Leather, Textile, Ceramic, Rubber, Paper, Petroleum and other Industries



Whatever became of
that Loom
 which could be driven by...



In 1774 two hopeful inventors, Robert and Thomas Barber, patented a loom for which they made the interesting claim outlined above. Unfortunately no records were kept on the performance of that remarkable machine.

Long before that time, and right down to the present day, the basic process of weaving warp and filling into cloth has excited inventive minds. It will always continue to do so — just as it does C&K engineers, who take each loom-improvement they achieve as merely a step toward the next advance.

They know how long it has been since the lightning of accidental discovery has struck in the loom industry. And they know that the only sure progress is made

possible by the steady light that shines out of past experience, onto a planned program of development for the future. C&K Loom-Development moves ahead constantly under that light, guided by a practical awareness of the inter-relationship of *all* loom parts, *all* types of yarns and blends.

In the past 20 years C&K engineers have increased loom speeds . . . reduced loom stops . . . increased the production of rolls of cloth, and cut their cost . . . to the point where, for example, *one of the most generally used C&K Looms is now delivering 61% more output per man-hour, and weaving far better fabrics.* Such progress augurs well for the future . . . particularly for the financial future of your mill.

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CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

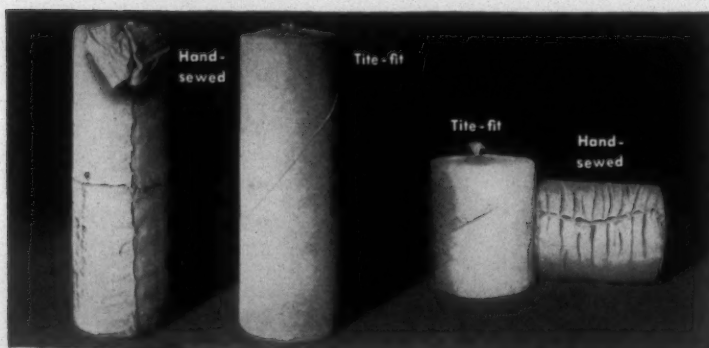
DO YOU KNOW? *By Using BEMIS* **TITE-FIT TUBING**

YOU **REDUCE** labor and material costs, because you:
ELIMINATE handling heavy bales of burlap.
ELIMINATE time required to open bales and remove bale coverings.
ELIMINATE time required to cut burlap into sheets.
ELIMINATE using more burlap than necessary.
ELIMINATE all hand sewing.
IMPROVE the appearance of your rolls.

YOUR CUSTOMERS **RECEIVE** neat packages that are easy to handle, because there's a handy ear on each end.

SAVE TIME as TITE-FIT TUBING is easily and quickly removed. Just untwist wire tie at one end and slip tubing off.

ELIMINATE chance of cutting into contents and damaging goods, as no cutting of sewing thread or goods is necessary.



This versatile tubing fits almost any shape and a wide range of package sizes. One roll may cover many different diameters and lengths neatly, without waste because TITE-FIT TUBING has stretch in both directions.

5 QUICK STEPS

That's all . . . when you package with Tite-Fit Tubing



1. Pull tube well down over object, leaving an overage to cover bottom.



2. Turn package on side and fasten tube at bottom with a wire tie.



3. Turn package upright and use both hands to take up slack.



4. Fasten top with a wire tie close to object to assure tight fit.



5. Cut off the Tite-Fit Tubing about 3 inches above the wire tie.

MAIL COUPON NOW

Bemis Bro. Bag Co.
5114 Second Ave., Brooklyn, N. Y.

☐ Send descriptive folder on TITE-FIT TUBING
☐ Send sample. Our packages are approximately _____ inches in circumference. (Please specify)

Name _____

Firm _____

Street _____

City _____ Zone _____ State _____

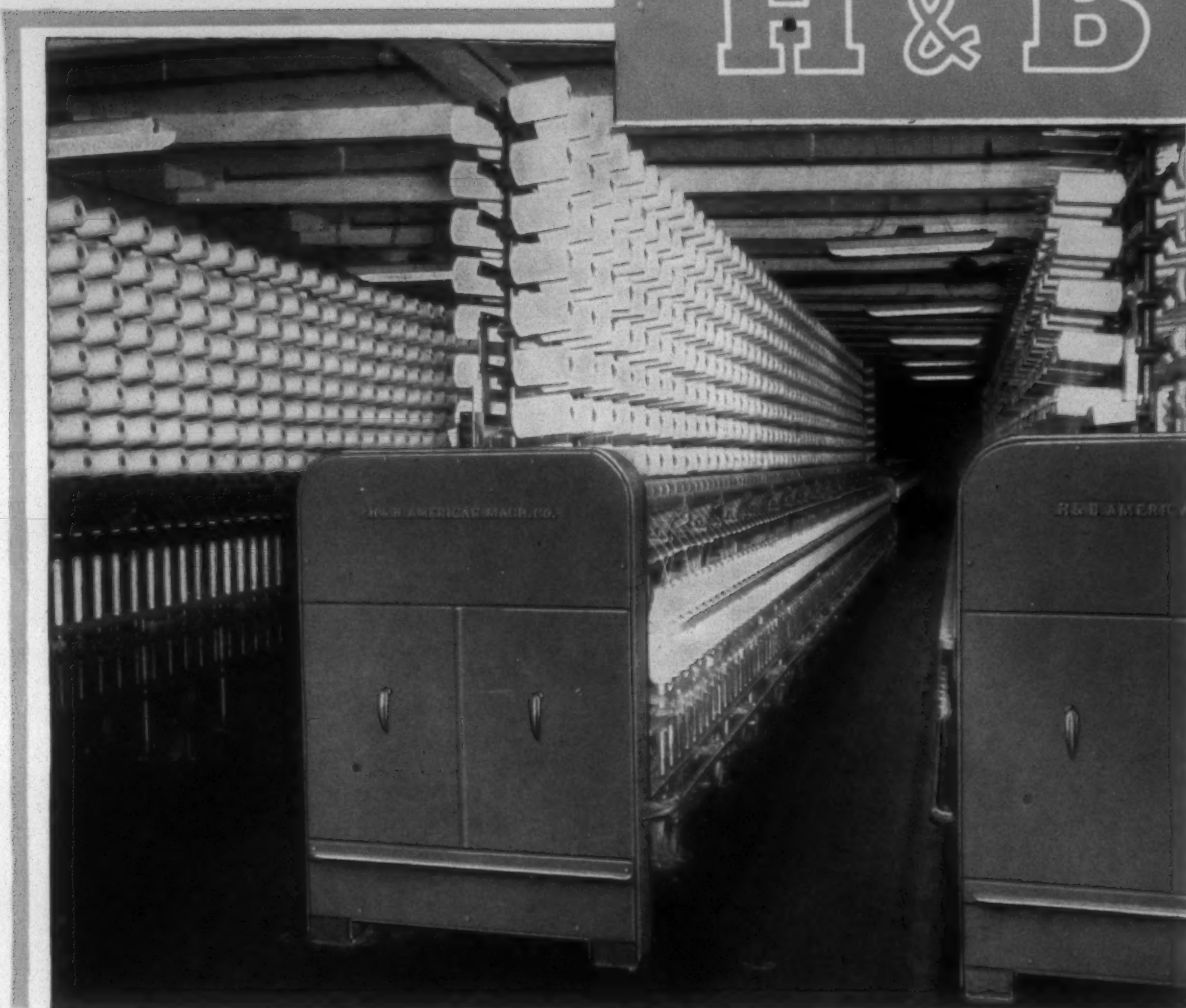
BEMIS BRO. BAG CO.

Brooklyn 32, New York



Canadian Bag Co., Montreal, and the Ontario Bag Co., Port Colborne, Ontario, are licensed manufacturers of TITE-FIT TUBING in Canada.

H & B



H & B Twisters, built exactly to exact specifications, assure high quality finished yarn with an even twist. They deliver a well shaped, firm bobbin carrying the maximum yardage permissible within the natural limits imposed by traverse and ring diameter. Whether this twisted yarn is used for duck, high quality broadcloths, gabardines, tire cord or sewing thread, you can depend on H & B. Our engi-

neering provides the right builder motion for trouble-free run-off on any type high speed winder, or in any other subsequent operation.

Additional features of H & B Twisters contribute to the quality of the twisted yarn and to the safety, ease and economy of operation of the machine. These are "the little things that make a big difference".

H & B AMERICAN

Builders of Modern

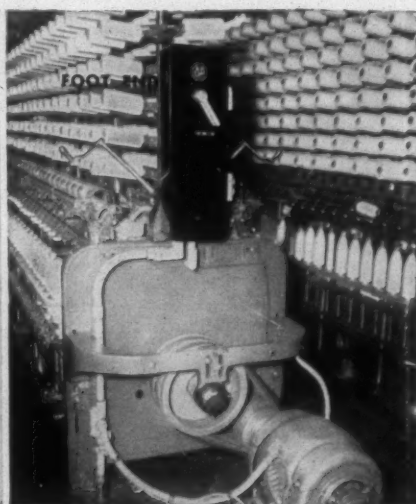
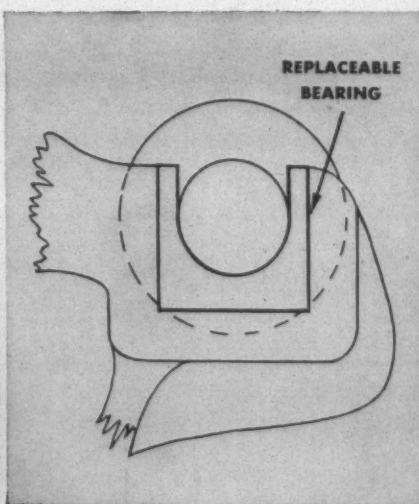
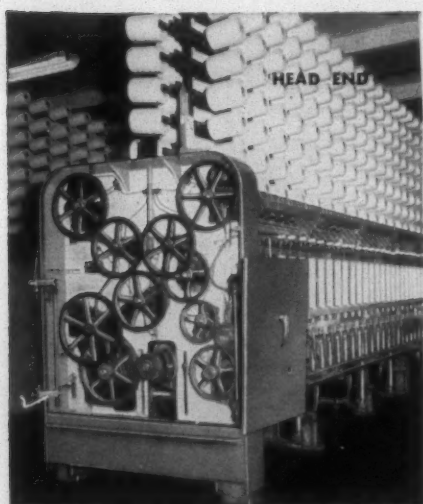
FACTORY, EXECUTIVE OFFICES AND EXPORT

TWISTERS

IT'S THE LITTLE THINGS

that make a Big Difference

- 1 A new type metallic traversing thread board that helps assure even yarn tension.
- 2 An anti-friction tension pulley that helps to maintain constant spindle speed.
- 3 Wet twisters are equipped with an automatic water feed control that keeps the same level in troughs, thus permitting even water penetration.
- 4 A ball bearing thrust washer in the builder drive that prevents dwelling at top and bottom of the stroke and particularly aids effective high speed winding.
- 5 An electric stop motion that prevents starting of machine when doors are open.
- 6 A silent chain drive from cylinder to jack shaft.
- 7 Replaceable bottom roll bearings to reduce maintenance cost.
- 8 Anti-friction bearings on cylinders that save power and maintenance.



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THE ADVANTAGES
OF SOAP

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POWERFUL
SCOURING
ACTION AND
VOLUMINOUS
FOAM

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RESISTANT
TO HARD
WATER, ACID,
ALKALI, ETC.

HYTERGEN the MODERN DETERGENT

CLEANS
ALL TYPES OF
FABRICS

QUICK FACTS ABOUT HYTERGEN

1. Possesses exceptional scouring action.
2. Produces a heavy, continuous foam.
3. Is an outstanding emulsifying agent.
4. May be used in acid and alkaline solutions.
5. Is unaffected by hard water or metallic salts.
6. Dissolves readily in water.
7. When used with soap, Hytergen prevents formation of insoluble lime soap curds.
8. Can be used on the most delicate fabrics and colors to good advantage.
9. Used to scour wool fabrics of open weave or soft spun yarns without any danger of felting.
10. Is an excellent dispersing agent for dyestuffs.
11. Promotes more level dyeing and even shades.

Hytergen is being widely used for the soaping, scouring, wetting-out, and boiling-off of all types of fabrics. Its use is positive insurance against all hard-water troubles. Hytergen is often employed together with soap to increase the action of the soap and at the same time prevent the formation of lime soap curds. Concentrations as low as $\frac{1}{2}$ -1 lb. per 100 gallons of water are satisfactory for most scouring operations.

Investigate this modern synthetic organic detergent. Write today for your copy of the Hytergen Technical Bulletin.

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Rayon Oils & Sizes
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Kier Bleaching Oils
Finishing Oils
Synthetic Detergents

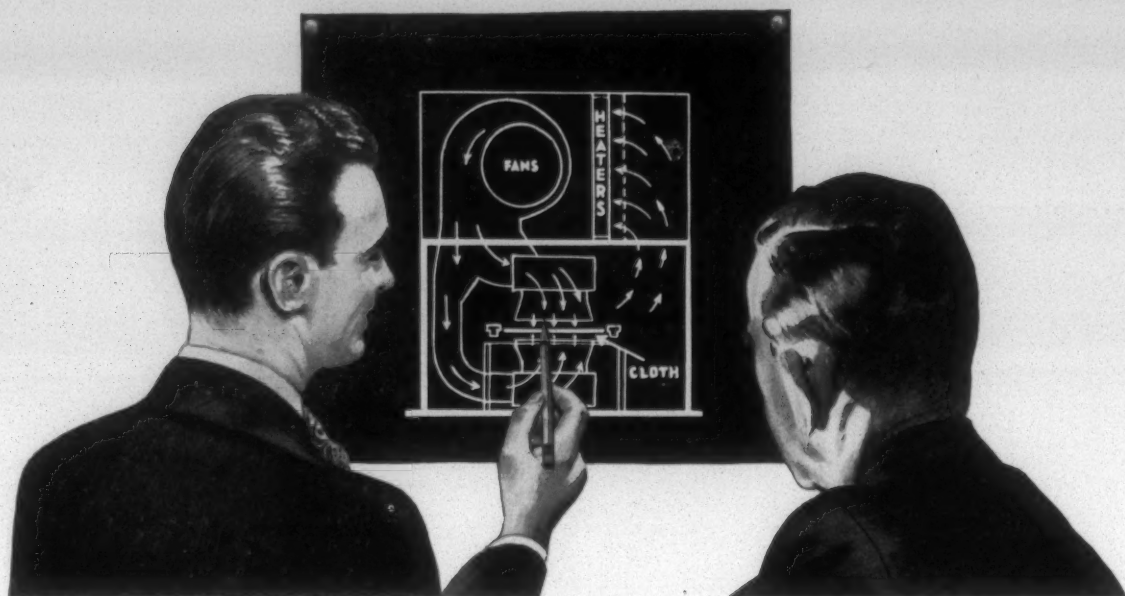
Conditioning Agents
Scrooping Agents
Splashproof Compounds
Delustrants
Leveling Agents

Cationic Softeners
Cotton Warp Dressings
Wetting-Out Agents
Weighting Agents
Mercerizing Penetrants

Hart Products



based on research



Penetration

in PROCTOR TENTER HOUSING

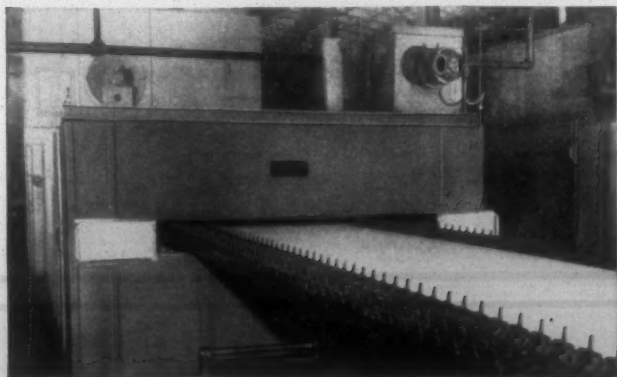
Several factors combine to assure superior finishing and maximum output when a single run tenter is enclosed in a Proctor housing. To obtain speedy drying and at the same time preserve the fabric quality and "hand"—takes careful engineering. Here's how this is accomplished with the Proctor system.

Air at high temperatures is impinged against *both* sides of the fabric as it is carried through the drying chambers. Circulating through the goods, this *penetration* of uniformly heated air greatly reduces drying time and vastly increases output. The proper *regulation of moisture in the air*, so as to

OF UNIFORMLY HEATED,
MOISTURE REGULATED AIR
SPEEDS DRYING
PRESERVES FABRIC QUALITY

obtain this speedy drying without harsh effects on the cloth, has a most important bearing on the quality of the finished goods. Temperatures, air velocity and drying speed may be altered to suit a wide variety of fabrics and finishes.

It is obvious, output will vary with individual plant requirements, the length of the machine and the character and weight of the goods . . . but in every instance—superior finishing is assured. One of the most recent applications for this system has been in the drying of fabrics preparatory to curing—in addition to its use with fabrics that must be held to width. For complete information on the possible application of this modern drying system to your individual plant or fabric requirements—write today. The more information you are able to supply about your fabric and output needs—the more intelligently we will be able to answer your initial inquiry.

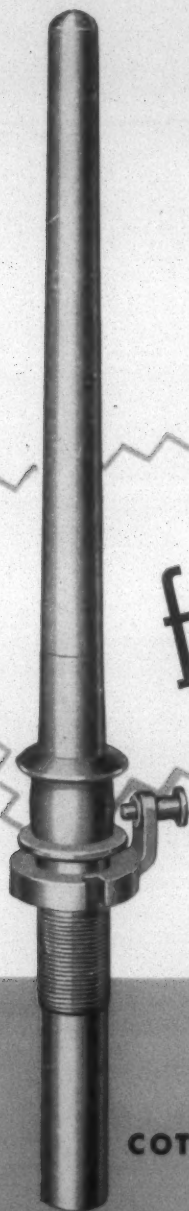


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Marquette

ROLLER BEARING SPINDLES *with* FULL-FLOATING FOOTSTEP BEARING

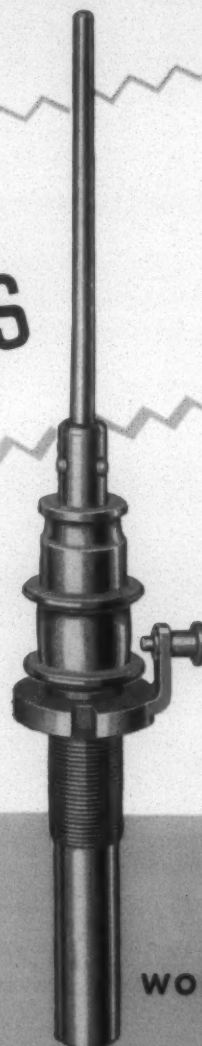
for all
textiles



COTTON



RAYON



WORSTED

The

Marquette

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By co-ordinating the efforts of three strategically located and capably staffed plants, Medley is able to offer roll repair and replacement service to mills in any of the country's textile centers.

Medley's unique method of restoring the outside diameter of metallic rolls to their original dimension without affecting their hardness or wearing quality has meant important savings to operators throughout the industry. This service is designed to reduce idle machinery time to a minimum and to make for maximum efficiency in operation.

Check today . . . let Medley show you how idle machinery time and lost man-hours can be saved by using this valuable roll repair service. A postcard or a call is all it takes.



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The famous Medley Sealed-in Ball-bearing, permanently lubricated top drawing rolls are standard equipment on Medley "8 Ends Up" or conventional 6 ends up drawing frames. Also, any standard make drawing frame can be changed over to this more efficient drawing . . . capable of adjusting to draw any fiber in staple lengths from 5/8 inches to 13 inches.

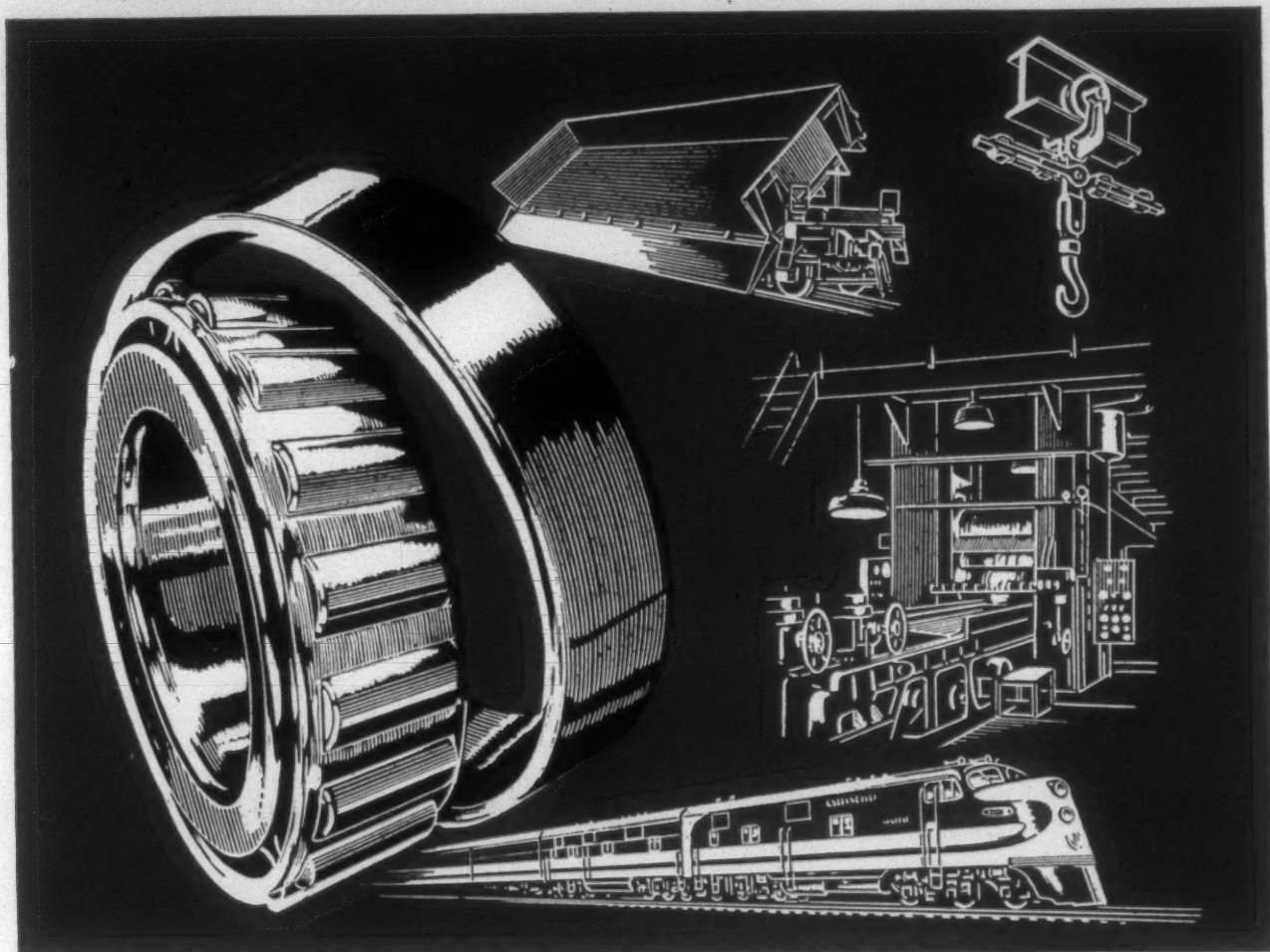
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Tycol Acylkup Greases perform better because:

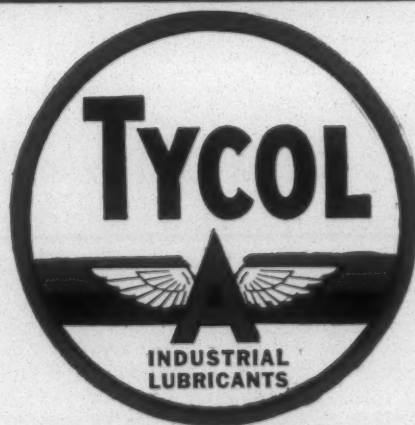
... *Tycol Acylkup Greases* are made from finest quality cylinder stocks and refined neutral oils, combined with a minimum of soap.

... *Tycol Acylkup Greases* are engineered to take it. They assure maximum performance.

... *Tycol Acylkup Greases* keep bearings smooth running and cool.

... *Tycol Acylkup Greases* supply the "film of protection" needed to give power a chance to produce.

Complete information on Tycol Acylkup Greases is available from your nearest Tide Water Associated Office. Write, wire, or phone today.



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LUBRICATION—"ENGINEERED TO FIT THE JOB"



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WHERE TO LOOK FOR BETTER YARN QUALITY

GOOD YARN QUALITY depends on many more things than the traveler. But it is equally true that, without the *right* traveler, both quality and production are badly off.

If your spinning or twisting is not up to snuff, it's a good time to talk to a Victor Service Engineer.

He can help you select the right traveler for the job. He can also

suggest other ways to keep your frames producing—more top-quality yarn per frame per day.

You'll find the Victor Service Engineer easy to talk to. He is thoroughly mill-trained, and he has sat in on thousands of spinning and twisting problems. He is familiar with all of the quirks of cotton, wool, and rayon, and has up-to-the-minute information on new

fibres and new blends.

Talk over your troubles with him, traveler-wise. He'll call at your request. Write, wire, or phone the nearest Victor office.



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Rayon Reports

Prepared Monthly by American Viscose Corporation, New York, N. Y.

AUGUST, 194

Techniques for Handling Paper Covered Cake

From the New Supplement to the booklet, "The Handling of Rayon Cakes." Write for a copy.

FILLING WINDING

1. In winding for filling, the cake is placed on the setup in the usual manner and the bottom half of the cover is turned down over the base of the cake holder.

2. The upper half is torn back to the insert, then pulled out from the cake, straightened and then tucked into the top of the insert. Tearing of the cover and lifting away from the yarn prevents disturbing the outer layers of yarn which would happen if this upper part is pulled off similar to the procedure used with knit covers.

3. The pie plate is then placed on the holder and cake is ready to run.

CAKE SOAKING

The paper being very permeable enables cakes to be handled in the same manner in treating or soaking as the knit cover. It has been found, however, that the paper cover has a tendency to trap air when the cakes are lowered into the soaking solution. To overcome this the cakes are wet out by pouring some of the soaking solution over the trays or basket before immersion in the soaking tub. The paper clings to the cake allowing rapid pick up of solution and eliminating the air pocket which would form between the paper cover and the yarn.

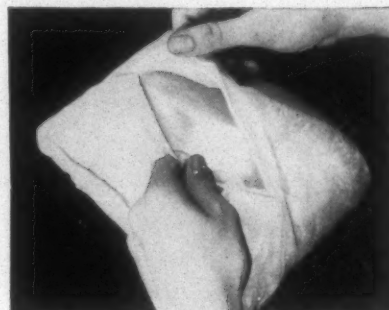
After soaking is completed the surplus liquor is allowed to drain from the cakes and they are extracted in the usual manner. Before drying, the yarn should stand a few minutes to give the paper a chance to dry on the inside of the cake which makes opening and shaping easier when placing on the dryer pole.

After drying the yarn is conditioned in the usual way and is ready for winding. In winding the same procedure is used in the setting up of the cake as described above for filling winding.

New Paper Cover* For Avisco Rayon Cakes Eliminates Return Problem of Knitted Covers



New one-way paper cover protects yarn... does away with returns.



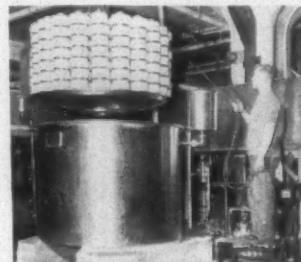
Good running qualities because paper cover does not disturb yarn alignment.

A disposable tubular paper cover for rayon cakes has been developed by American Viscose Corporation.

This innovation means that the handling problems, bookkeeping included, entailed by the more costly, non-disposable knitted covers can now be eliminated.

The paper-covered cake has already been successfully used by many mills and its practicability clearly demonstrated. Not only have users found it more convenient, but in many cases superior efficiency is reported. Their experience indicates that the cakes are more likely to remain undisturbed during shipment, minimizing waste and promoting greater efficiency in unwinding and throwing. Because of its permeability and high degree of wet strength excellent results have been obtained in soaking, dyeing, drying and extracting.

*Patented



Paper-covered cakes being processed on a commercial scale.

MAKE USE OF *Avisco*[®] 4-PLY SERVICE

To encourage continued improvement in rayon fabrics, American Viscose Corporation conducts research and offers technical service in these fields:

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- 2 FABRIC DESIGN
- 3 FABRIC PRODUCTION
- 4 FABRIC FINISHING

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Are Your Ducks in these Rows?

MORE PRODUCTION

AT LESS COST

Here's how you can get lined up to meet present day requirements of volume textile production.

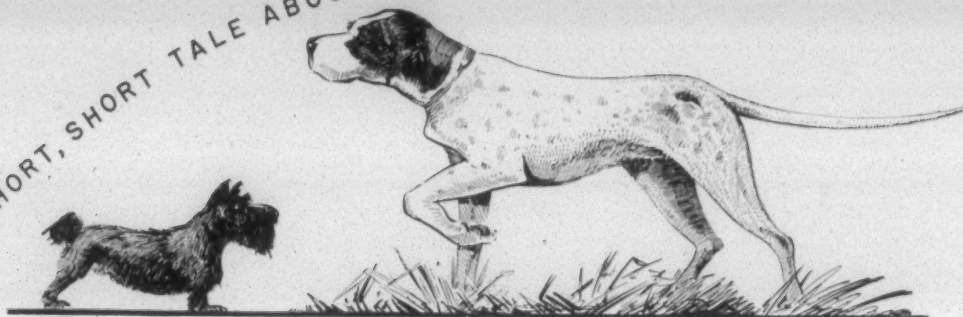
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A SHORT, SHORT TALE ABOUT "TAILS"



UNIFORM SIZE



PAT. APPLIED FOR

Numo
AUTOMATIC
SPINNING CONTROL

UNIFORM TAIL

DESIGNED FOR ONE PURPOSE...

TO ELIMINATE UNEVEN PACKAGES AND TAILS

(applicable to spinning yarn, also warp spinning)

The economy and efficiency of Numo Automatic Spinning Controls have been proved in America's largest textile mills. It offers these major advantages!

- Eliminates the necessity of doffers bearing rail down manually . . . makes doffing easier.
- Eliminates uneven packages from doff to doff.
- Eliminates chokes on spindles.
- Eliminates uneven tails left at butt of bobbins.
- Increases production by saving time at each doff.
- Reduces number of ends down on doff . . . Effects many other direct savings.
- Uniform packages and tails eliminate the necessity of unraveling long tails and "hunting" for ends. This means less bobbin transfer or break-out, as well as reduction in waste yarn. Once set for desired bobbin size and tail, there will automatically be a duplication on all succeeding doffs.

Write today for illustrated literature showing why more and more mills are turning to NUMO for increased production and lower cost.

NUMO MACHINE & ENGINEERING CO., INC.
CHARLOTTE • NORTH CAROLINA

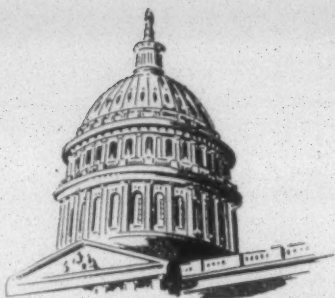
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Station C, Box 164
Atlanta, Ga.

The Rudel Menry, Co., Ltd.
614 St. James St., West
Montreal 3, Canada

Walter S. Coleman
P. O. Box 722
Salisbury, N. C.

Barnhardt Bros. Export Corp.
P. O. Box 748
Charlotte 1, N. C.

Barnhardt International Corp.
P. O. Box 748
Charlotte 1, N. C.



WATCHING WASHINGTON

[Exclusive and Timely News from the Nation's Capital]

The surface is only slightly scratched by the Ferguson Committee in revealing the all-important details of Communist infiltration into ranks of industrial workers through tricky doings of Communists in high government jobs. The committee has far more information than was brought out. Much of it is being withheld until Mr. Truman can be induced to raise his iron curtain on the records of bureaucrats and officials in key posts, built up in loyalty investigations. These records would indicate the Treasury, Agriculture, Labor and State departments to have been hot-beds of Communists in high jobs, and of N. L. R. B. controlled at every key point by a card-carrying Communist or a tested and tried "fellow traveler."

Concealed records would show, if revealed, how Red activists were strategically placed in N. L. R. B. when it first was organized, and moved around like pawns to promote infiltration among workers. They tilted board decisions, conspired against managements, and fixed things so Communist controlled unions could win plant elections, and extend Communist power for industrial control and political pressure.

The records would show, if disclosed, how as few as five active Communists were able to seize undisputed control of some of the country's largest unions. With connivance of Communist bureaucrats they would bully managements, promote strikes, cut down production and levy government rulings on industrialists that drove them into or near bankruptcy. Communist cells have been moved intact from one bureau to another to control some ruling, policy, decision or interpretation of law.

F. B. I. records, if brought out, would show Red agents in key war posts, some of the most active of them serving on war production, labor-management and other strategic boards. They had full access to tremendously vital war production and military secrets.

In some instances forthcoming N. L. R. B. decisions in industrial disputes were discussed in Communist conferences, and altered before being issued to more fully fit the Communist Party line. The same Reds who dictated decisions and influenced federal policy were also active in the C. I. O. Political Action Committee.

One detail in carefully charted Communist strategy proposed seizure of all top industrial, political and social controls in the key industrial cities. This would be followed by pressure through F. E. P. C. and other agencies to force Communists into key posi-

Fast and bright...

vat colors on wool

NOW...vat colors can be applied to wool, producing the brightness and fastness so well known on cotton and rayon! Pastel shades too! Du Pont has developed new techniques for applying all types of vat colors to wool raw stock and to tops. Vats already are achieving importance for automobile upholstery, drapery fabrics, and for hand knitting yarns. They give you qualities never before obtainable.

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*REG. U. S. PAT. OFF.



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BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

tions in all lines of activity, and to thrust non-Communists into the background or into unemployment.

Red leaders have believed that through control of big cities like Cleveland, Pittsburgh, Atlanta and Birmingham, they could dominate all surrounding smaller towns and rural areas. They expected to force native-born populations out of these cities into smaller towns and farm districts, where their influence and opposition would be negative.

A Communist Party card has not been sufficient to gain entry into top Communist ranks. Very secret "clubs" of top-flight leaders were formed, into which a membership card, with the pass word, gained admission only for the chosen few.

The astounding thing to the Ferguson Committee is that top Communist agents and sympathizers have been able to move at will from one top job in government to another, and from department to department. The committee believes this was done only through persons highly placed in White House circles.

The President and his aides were stunned by the suddenness and force of the Ferguson investigation. They had expected that Congress instead would try to reopen inquiry into wartime spending and provide for inquiries into campaign spending this year. Congress did neither one.

Ferguson's investigation is certain to be continued in the next Congress, when efforts will be renewed to pry documentary evidence from government departments, boards and commissions. N. L. R. B. decisions will come in for another scrutinizing study.

Congress wrote its own version of anti-inflation and housing relief, without federal subsidies. Six of the President's eight demands were ignored. Congress had turned down all of them many times before, although in every instance urgently demanded by C. I. O.

Majority leaders had no desire to take up controversial "civil rights" proposals in a special session. They did call up one, the poll tax, which they thought would be the easiest for the Southerners to knock down. Three New England states have poll taxes, too.

Mr. Truman is being told by close advisers he must make the "fightingest" campaign ever waged for another term. He is being urged to "stump" from coast to coast, and to go into the Deep South.

Democratic strategy is expected to keep the contest in confusion and turmoil, with pressure on the "foreign" Negro voters of big cities to turn out full strength. It will be noisy, rough and sometimes dirty fighting. Truman's campaign will be wholly in the hands of Northern Democrats. With two or three exceptions, all Southerners are suspect, and Truman wants none of them. How to carry the South is the toughest problem facing the Truman strategists. They hope for a large vote in the South, and will concentrate on carrying the larger cities.

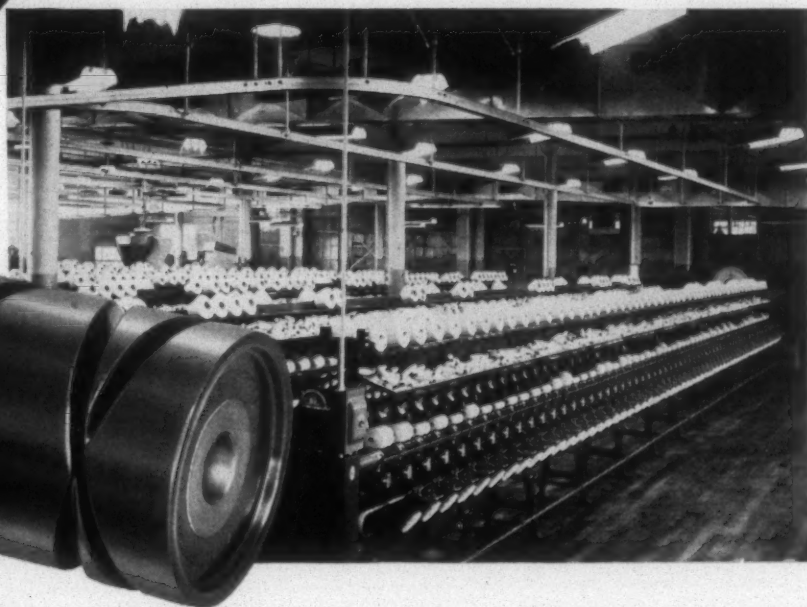
Winding Room

AT WEST BOYLSTON

*It's Roto-Coners**

This is one section of the winding room at the Boylston, Alabama mill of West Boylston Manufacturing Company of Alabama. The machines are Roto-Coners*, the winding machines for cotton yarn† which are now being selected in the majority of cases for new installations and replacement of old winding equipment.

†And in slightly different form for wool and worsted, spun rayon



Roto- Coners*

It's the Rotary Traverse

This is the rotary traverse, the exclusive one-piece combination driving drum and traverse guide. It is the major reason why the Roto-Coner* can be operated at speeds up to 550 ypm regardless of yarn count, and at a cost for maintenance of less than 1/2 of 1% on investment. It is also the reason why packages wound on the Roto-Coner* — uniform in shape and density, free from roll-cuts and underwinds, accurately inspected — are preferred for knitting, warping, dyeing, twisting.



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Agents in every principal textile center throughout the world

ROTO-CONER* *the only machine with the rotary traverse*

the bulletin board

Questions, answers, comments and other material submitted by the readers for use in this column should be addressed to Editors, TEXTILE BULLETIN, P. O. Box 1225, Charlotte 1, N. C. All material will be edited properly before publication.

CAFETERIA MANAGERIAL POSITION

Sirs:

I am interested in obtaining a managerial position in the food service department of a Southern plant. Will you please suggest the best way of contacting such textile plants as may be interested? Does your publication carry such advertisements, or have a list of plants with in-plant feeding facilities?

(Mrs.) Margaret B. Dana
903 East McCleary Ave.
Dayton 6, Ohio

¶ The number of Southern textile plants which already have or are in the processing of setting up in-plant feeding facilities for their employees is increasing rapidly; you should have no trouble in securing a managerial position in one of them. We have no list of such plants, but one might be secured from Crotty Bros. in Boston, Mass. TEXTILE BULLETIN carries "positions wanted" notices in its classified advertising section.—Eds.

HOSIERY DYE BAG FABRIC

Sirs:

We are interested in the aeroplane nylon fabric that was advertised about three years ago, what issue I do not know. We would like this material for making hosiery dye bags. Would you please quote us a price? If you do not have same can you tell me where I might obtain it?

Crescent Hosiery Dye Co.
40-22 23rd Street
Long Island City, N. Y.

¶ If the fabric was advertised in 1945 it is not likely to be available from that source now. Material of this type might be found in remnant stores if the quantity you need is not too large.—Eds.

FROM OVERSEAS

Sirs:

We understand from Mr. Paul F. Geren, American vice-consul, that your TEXTILE BULLETIN is one of the important textile publications on your side. Much as we are interested in textile and allied trades, we take pleasure to introduce ourselves and at the same time invite your annual subscrip-

tion rates, etc., for your journal. A specimen copy of your publication per return of post will be very much appreciated.

Jayshree Commercial Corp.
32 Appolo Street, Fort
Bombay, India

¶ Sample copy has been sent. The yearly rate to subscribers in foreign countries is \$3.—Eds.

CLOTH BRUSHING MACHINERY

Sirs:

Even though the bulk of our activity is concentrated in the woodworking machinery line we are constantly asked to assist our friends, particularly our foreign agents, to locate certain types of textile machinery. At the moment we are looking for a manufacturer of a cloth brushing machine. If you can recommend a reliable manufacturer, we would appreciate this courtesy.

V. Peterzell
Victor Peterzell & Co.
5933 Catherine Street
Philadelphia 43, Pa.

¶ Two builders of such machinery are Her-mas Machine Co. at Hawthorne, N. J., and Curtis & Marble Machine Co. at Worcester, Mass.—Eds.

TEXTILES IN INDIA

Sirs:

One of our textile clients tells us a "Mr. Mitchell" made an address at a recent meeting of the Southern Textile Association on the subject "Textiles In India." Our client asks us to help him get the address of this gentleman and see if it would be possible to get a copy of his speech.

Elliott H. Hall, Jr.
Lowe & Hall Advertising
500 News Building
Greenville, S. C.

¶ The address was made at Greenville April 3 before the South Carolina Division, S. T. A., by Nathaniel M. Mitchell, president of Barnes Textile Associates, Inc., 10 High Street, Boston 10, Mass. Mr. Mitchell spoke extemporaneously at this time, and no copies of his remarks are available. However, he delivered very much the same address earlier to the American Association of Textile

Technologists in New York City. A copy of this address very likely can be secured from that organization.—Eds.

TEXTILE PAY RATES

Sirs:

We are the attorneys for a company which manufactures cotton cloth which, in turn, is made into gloves as the end production. This company is located in Pennsylvania. We do note that your organization publishes TEXTILE BULLETIN, and wonder if you could advise us whether it contains material showing the average hourly earnings in that portion of the textile industry which would cover the operation in which our client is engaged. Of course, the more recent the information, the more value it will have. If you do not have such material, we should greatly appreciate it if you would advise us as to whom we could contact to secure same.

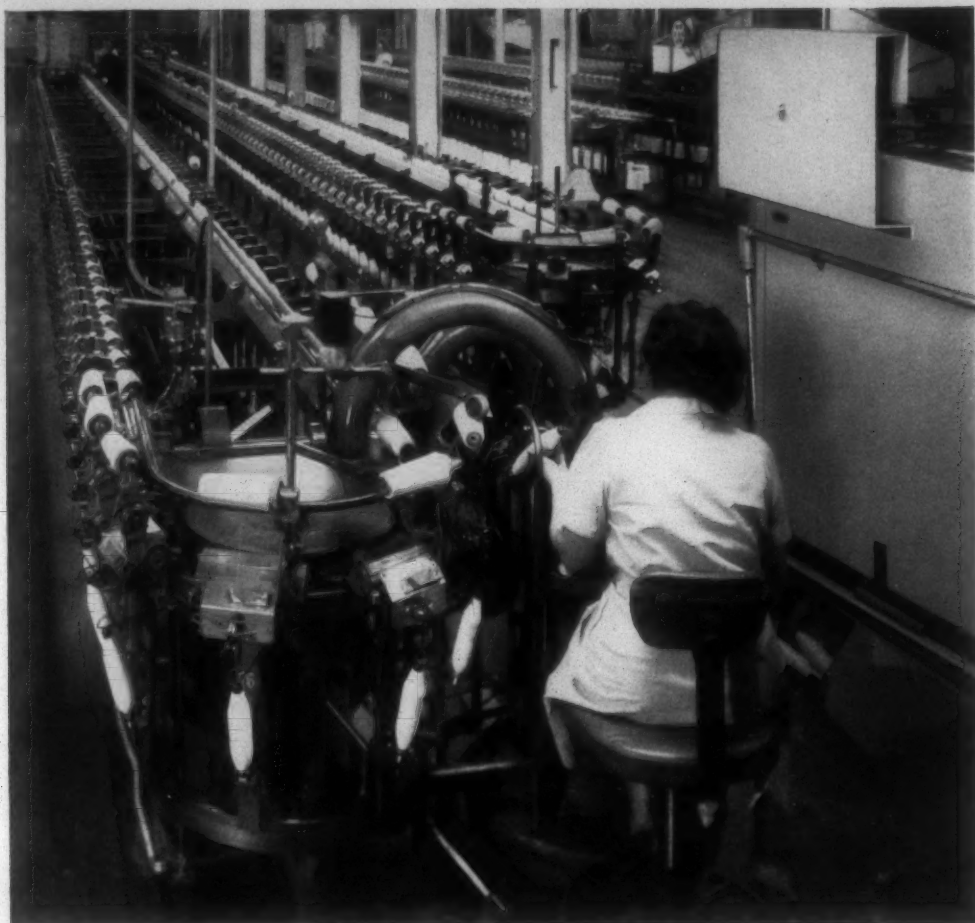
Edward F. Seligman
Seligman & Seligman
295 Madison Avenue
New York 17, N. Y.

¶ This information may be secured from the Bureau of Labor Statistics, U. S. Department of Labor, Washington 25, D. C. We do not keep a file of average hourly earnings in the textile industry, since they change so often. In the first place, rates of pay differ slightly in Northern and Southern states. They also differ for the types of jobs in textile mills. In addition, your client has a glove manufacturing operation, which makes for a further complication. In writing to the Bureau of Labor Statistics you should explain exactly what information you want, giving as many details as possible, so that B. L. S. can furnish figures which apply to the particular organization you are serving.—Eds.

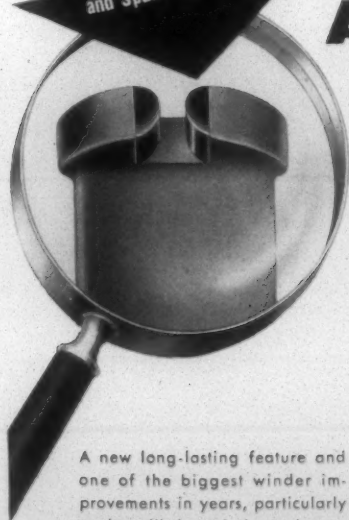
35 YEARS OF BRUSH PEDDLING

Sirs:

Sorry I don't get up to Charlotte any more to see you folks, but they keep me busy down here in the land of the Dixiecrats. They tell me the Dixiecrats are going to make Dave [Clark] secretary of labor in their cabinet. I have been down in Florida



Carboloy Inserts
in all
Thread Guides
a Feature Improvement
in Winding Worsted, Wool
and Spun Fiber Yarns!



A new long-lasting feature and one of the biggest winder improvements in years, particularly to the mill that winds wool, worsted, or spun fiber yarns, is the Abbott carboloy steel insert on all thread guides.

Reduce Operator Fatigue and *Increase Winding Production* with

ABBOTT Automatic WINDERS

The Abbott principle of a moving assembly line reduces operator fatigue to a minimum. Operators sit down while working, set full bobbins in a rotating magazine and doff full bobbins — ONLY TWO OPERATIONS FROM ONE COMFORTABLE POSITION.

The result is more bobbins tied in per hour than on any other equipment, increasing your winding production. Some installations are producing up to 1000 bobbins per hour per operator.

ONLY ONE OPERATOR PER ABBOTT *Automatic* WINDER. Regardless of the length of the machine, which is determined by the average yardage of bobbins to be run out in one circuit, only one operator per machine is required — a saving in operational overhead cost results, as floor labor is largely eliminated in this modern method of winding.

Write for further information to:

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WILTON, NEW HAMPSHIRE

SOUTHERN OFFICE, GREENVILLE, S. C.

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GREASE-RITE
TALLOW

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Northol P. C.
for use with any
make of machine,
for setting twist
and
conditioning yarns

PRODUCTS of unsurpassed quality and performance, plus an experienced knowledge that knows how to recommend their use for practical results—is convincing more mills, day by day, that NORTH is the place to turn for service and supply when changing conditions require new and highly specialized products to meet the problem at hand. Our men are trained in practice; not in theory. Our products pass the same exacting test.

Among the nation's largest manufacturers of dressings for all warp yarns

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BULLETIN BOARD

three times this Summer fishing, have only caught some small ones—the largest didn't weigh but 60 pounds. I am enclosing one of my blotters announcing my 35th year with Atlanta Brush Co. the 15th of September, also my 70th birthday). Hope all of you are doing fine and enjoying good health.

George B. Snow
Atlanta Brush Co.
Atlanta, Ga.

¶ The message on George Snow's blotter states: "This is my 35th year of happy service to you. I have traveled one million, three hundred thousand miles by automobile and hope to make more." We hope the highly-esteemed Mr. Snow eventually registers at least three million miles on his speedometer before he retires from active service.—Eds.

LOOM OUTPUT FORMULA

Sirs:

Here is a little formula I doped out that may be of great assistance to textile superintendents, etc., to determine their loom production, quickly and with ease:

Picks per min. \times 200
= Yardage for 120
Picks per inch hours

This formula works regardless of the type cloth being woven. Have someone check it, if you want, and they will find that it hits on the head every time.

C. J. McCormack
The Monroe Co.
P. O. Box 123
Anderson, S. C.

¶ We accept no responsibility if the formula is used by poor mathematicians.—Eds.

HAND-WEAVING

Sirs:

As occupational therapist at the Warm Springs Foundation, I am interested in finding out where we may obtain materials for making hand-woven bags. I am especially interested in stocking loopers, which we use to great advantage. Could you please tell me where we may obtain nylon or silk loopers?

Mrs. Eleanor Ring, OTR
Warm Springs Foundation
Warm Springs, Ga.

¶ Rayon and nylon looper clips can be secured from Nelly-B Products, Inc., at Hickory, N. C. This firm also furnishes frames which are used to make table mats and pot-holders out of the looper clips. We know of no source for silk looper clips.—Eds.

DENSITY MEASUREMENT

Sirs:

Do you have information as to where an instrument for measuring the density of yarn on a cone can be secured?

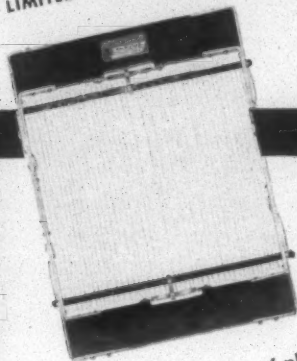
M. P. DeLeo
The Morris Speizman Co.
508 West Fifth Street
Charlotte 2, N. C.

¶ Sipp-Eastwood Corp., P. O. Box 1370, Paterson, N. J., manufactures such an instrument; it is called a Densimeter. Alfred Suter, 200 Fifth Avenue, New York City, used to produce a package density tester, but we do not know whether it still is available.—Eds.

THERE ARE 3 TYPES OF EMMONS HEDDLE FRAMES!

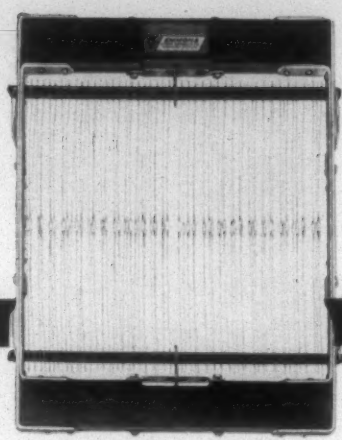


EMMONS SINGLE BAR LIMITED SLIDE FRAME



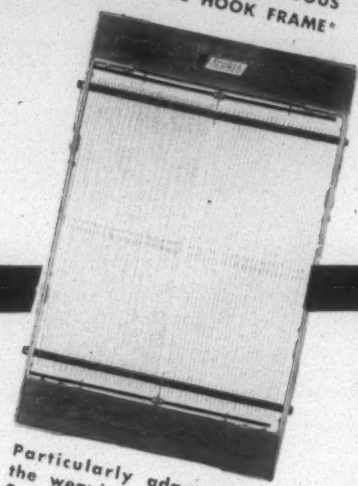
For almost any type of plain or Dobby goods weaving.

EMMONS DOUBLE BAR LIMITED SLIDE FRAME

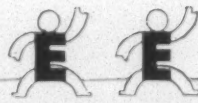


Extremely suitable for weaves where a double bar harness is required such as Light Duck, Narrow Sheet-ing, etc.

EMMONS #E-11 CONTINUOUS SLIDE HOOK FRAME*



Particularly adaptable to the weaving of rayon and fine worsteds.



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- EMMONS LOOM STRAPPING**
(Manufactured by B. F. Goodrich Co.)
- RUN-RITE PLASTIC SHEAVES AND TAPE TENSION IDLERS**
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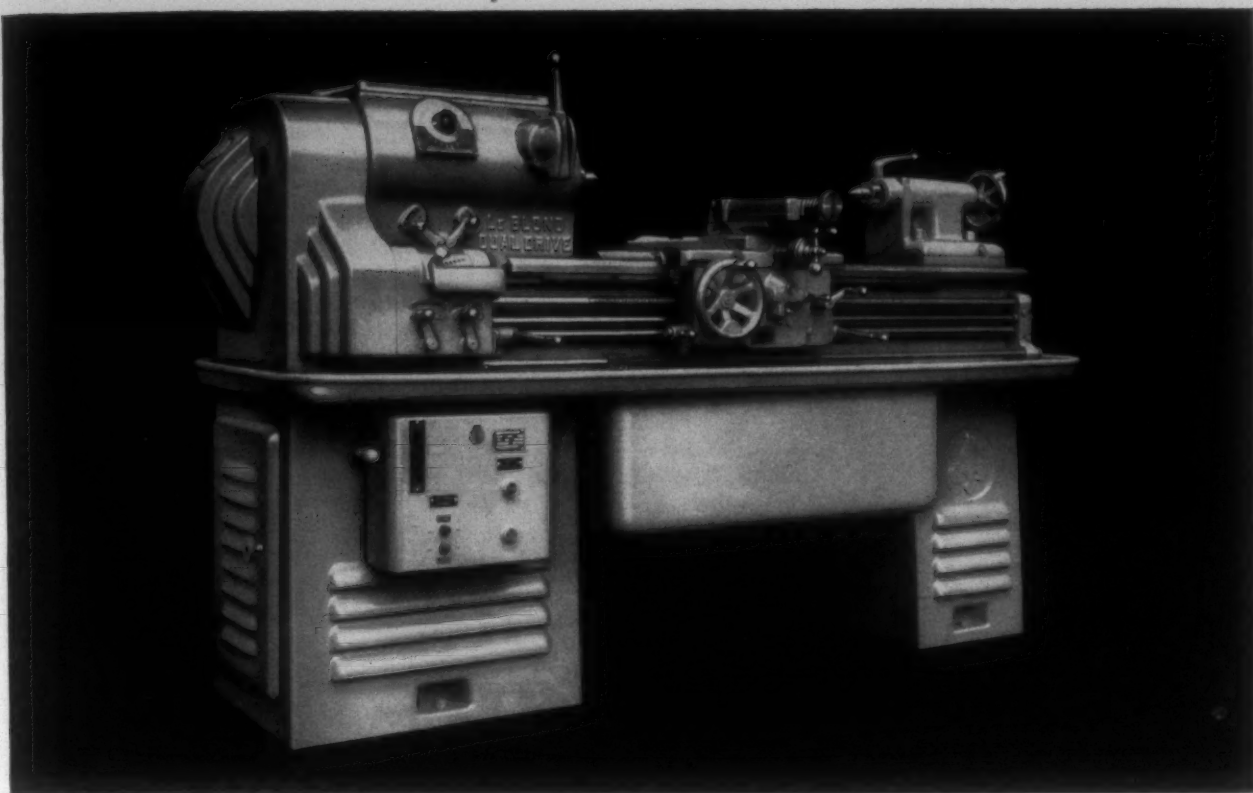
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Now two separate spindle speed ranges are combined in one lathe. 1. A direct belt drive for high speed carbide cuts. 2. A gear drive for slower, heavier stock removal. Greatly increases your turning possibilities . . . for

production runs, maintenance, experimental work, apprentice training. Operates with ease and simplicity. Low initial investment, low operating cost. A truly modern lathe for today's and tomorrow's turning requirements.

get carbide speeds AND slow speeds...PLUS:

- 12-speed combination gear and belt drive headstock, 28-1800 rpm.
- Single lever speed control, direct reading plate, guiding arrow.
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- One-piece apron with positive jaw feed clutch and one-shot lubrication.
- Clutch and brake with two-station control.
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- Multiple automatic length stops.

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textile bulletin

PUBLISHED MONTHLY BY



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 TEXTILE BULLETIN is a member of the Audit Bureau of Circulations and the Associated Business Papers, Inc. 

Past the \$1,000,000 Mark

A personal donation of \$6,000 by W. J. (Nick) Carter, the man who called the meeting in December, 1942, at which it was decided to establish the North Carolina Textile Foundation, Inc., recently put the total of donations over the \$1,000,000 mark.

A donation of \$2,300 by the Waverly Mills, Laurinburg, N. C., made in order to bring its donation to the requested quota of ten cents per spindle, brought the total of donations to \$994,815.67, or only \$5,184.33 short of the million dollar mark.

Noting this, Nick Carter personally laid \$6,000 upon the line and had the satisfaction of pushing over the \$1,000,000 mark the donations to the organization.

Our memory is somewhat hazy relative to who attended the original meeting in December, 1942, but we do know that W. J. (Nick) Carter, J. Spencer Love and Herman Cone of Greensboro, N. C., and David Clark of Charlotte, N. C., were present. We are of the opinion that J. Ed Millis of High Point, N. C., and W. H. Ruffin of Durham, N. C., and possibly some others were present.

We do know that after Nick Carter had explained why he called the meeting and voiced his ideas about the need for better training for textile students and insisted that the only way to obtain outstanding textile men as teachers would be to pay more than the standard salary scale of North Carolina State College, Spencer Love grabbed the ball and took the lead in urging the establishment of a textile foundation to which mills, many of which were then in the 80 to 90 per cent tax brackets, could contribute.

No one, at the original meeting, had any idea that a goal of \$1,000,000 of donations could be reached but now an ultimate goal of \$2,000,000 is not considered to be too high and we have confidence that it will be reached.

Much of the success of the North Carolina Textile Foundation, Inc., was undoubtedly due to a streak of good luck at the beginning, when Malcolm E. (Sandy) Campbell was secured as Dean of the School of Textiles at State College.

His employment was made possible by a salary supplement provided by the Foundation. Without that salary supplement Sandy Campbell could not have been secured and a less qualified man would have been employed.

Dean Campbell had at his command salary supplements to be provided by the North Carolina Textile Foundation whenever a supplement was needed to secure the teacher he desired and has acquired a staff of outstanding specialists.

The marked development of the School of Textiles and the very careful manner in which funds of the North Carolina Textile Foundation, Inc., have been handled has inspired mills and individuals to make liberal donations.

Through J. Spencer Love, the Burlington Mills, which had already given \$35,000 to the Foundation, gave 3,500 shares of Burlington Mills stock, then valued at \$65,000 but now worth considerably more, to establish a salary supplement for a "BURLINGTON MILLS PROFESSOR OF SYNTHETIC FIBERS," Harry Garden of the American Viscose Corp. was secured to fill the position.

More recently Neuss, Hesslein & Co. of New York gave enough of their five per cent preferred stock to provide a salary supplement and thereby establish the "EDGAR AND EMILY HESSLEIN PROFESSOR OF FABRIC CONSTRUCTION AND MANUFACTURE." Ben Whittier of Mount Vernon-Woodberry Mills was secured to fill the position.

Recently, in fact, since the donations to the Foundation passed the million dollar mark, the Standard Hosiery Mills of Burlington, N. C., and the Chester H. Roth Co. of New York have jointly guaranteed a salary supplement for ten years and established the "CHESTER H. ROTH PROFESSOR OF KNITTING." They state that they expect to establish it upon a permanent basis. The professorship will be filled by the present Professor of Knitting, W. Ed Shinn.

Several other "name" professorships are expected to be established before the end of the year and the prospective donors of funds for one of them have definitely made commitments but prefer to wait until almost the end of the year before making the announcement.

The North Carolina Legislature of 1947 appropriated \$450,000 for an addition to the building of the School of Textiles and \$150,000 for modern textile machinery.

Bids for the addition to the School of Textiles were more than \$550,000 but Governor Cherry and the Budget Commission "found" the additional funds needed and construction work upon the addition has already begun.

As the Legislature of North Carolina meets at two-year intervals, there was no session in 1947, but the 1948 Legislature will be asked to appropriate \$200,000 for dyeing, finishing, printing and textile specialty machinery and provide funds for the addition of more teachers in the School of Textiles.

There is little doubt that both of the requests will be granted because the people of North Carolina and the Legislature are very proud of the School of Textiles.

Someone said many years ago that if a man builds a better mouse trap the world will beat a path to his door even though his factory be in deep woods.

We can well believe that, because from February to June

of this year, there was rarely a day when representatives of one or more mills were not in Raleigh interviewing those who were to graduate in June and offering them positions at exceptionally high starting salaries.

The quality of the School of Textiles at North Carolina State College is also reflected in the very large number of students from outside of North Carolina, and many from outside the United States, who are seeking admission.

Due to the fact that the Board of Trustees has limited the admission of out-of-state students to 15 per cent of those admitted, it is rather difficult to gain admission.

We have watched the North Carolina Textile Foundation, Inc., from its organization in 1942 and it was with much gratification that we heard that W. J. (Nick) Carter had personally made a donation of \$6,000 and pushed Foundation donations above \$1,000,000. We confidently expect that some day, not in the too far distant future, there will be the news that the \$2,000,000 mark has been passed.

Under Dean Sandy Campbell the School of Textiles at North Carolina State College has made worthwhile progress and mills know that their donations will be wisely used.

Editor in Politics

David Clark, editor of TEXTILE BULLETIN, and J. E. Baker, president of the Baker-Cammack Hosiery Mills, Burlington, N. C., recently joined hands and took the lead in an effort to make it certain that Harry Truman would not secure the electoral vote of North Carolina.

At first it appeared to be, because of some rules made by the North Carolina Election Board, an almost impossible undertaking, but as we go to press success seems to be in sight.

David Clark and J. E. Baker announced the organization of the States' Rights Democratic Party, which would support the nominees of the regular Democratic Party in North Carolina but would vote for J. Strom Thurmond of South Carolina for President and Fielding Wright of Mississippi for Vice-President.

They induced Col. Philip S. Finn of Hendersonville, N. C., a graduate of Clemson College, to accept the state chairmanship while they became the co-chairmen.

In the brief period of five days they secured the signatures of 18,861 citizens of North Carolina to petitions asking the Election Board to put their candidates upon the ballot to be voted on Nov. 2.

The Election Board denied the request because of some rules which they themselves promulgated but which David Clark and J. E. Baker contended are illegal.

As we go to press attorneys for the States' Rights Democratic Party are preparing the papers which are to be presented to a Superior Court judge with a request for a mandamus.

The liberal press in North Carolina have been engaged in making editorial attacks upon David Clark and J. E. Baker but they are standing by their guns and confidently expecting that the decision of the court will permit the names of the candidates of the States' Rights Democratic Party to be placed upon the ballot.

In July the big city bosses were in absolute control of the National Convention of the Democratic Party.

So certain were they that the South was "in the bag" and would vote for Truman that they did not hesitate to insult

and revile the Southern delegates and eliminate the principle of states' rights from the platform.

If the South does not give Truman its electoral votes, the big city bosses will realize that they can never elect a president without the votes of the South and in 1952 will do whatever the South wishes them to do.

The election of Dewey and Warren is not pleasing to us because of the F. E. P. C. law which Dewey established in New York State and which Warren attempted to saddle upon California.

However, Dewey and Warren are certain of election and it makes little difference if the electoral vote of North Carolina swells their total.

There are thousands of North Carolinians who will not vote for Truman or Wallace under any circumstances and will stay away from the polls rather than vote for Dewey.

If David Clark and J. E. Baker win their fight and place the names of Strom Thurmond and Fielding Wright upon the ballots as States' Rights Democratic Party candidates, many thousands will go to the polls and vote for them as the candidates of the States' Rights Democratic Party.

Senator McGrath, chairman of the National Democratic Party, recently said:

President Truman is not going to lose the electoral vote of any Southern state—wait and see.

Chairman McGrath must be weak minded and is due for a rude awakening.

TEXTILE INDUSTRY SCHEDULE

- Sept. 1-2—SOUTHEASTERN PERSONNEL CONFERENCE, Duke University, Durham, N. C.
- Sept. 20-22—Fifth SPINNER-BREEDER CONFERENCE (sponsored by Delta Council advisory research committee), Stoneville, Miss.
- Sept. 25—SOUTHEASTERN SECTION, AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS, Columbus, Ga.
- Sept. 27—Oct. 1—Third NATIONAL PLASTICS EXPOSITION, Grand Central Palace, New York, N. Y.
- Oct. 4-9—15th SOUTHERN TEXTILE EXPOSITION, Textile Hall, Greenville, S. C.
- Oct. 14-15—Annual meeting, NORTH CAROLINA COTTON MANUFACTURERS ASSOCIATION, Carolina Hotel, Pinehurst, N. C.
- Oct. 12-16—Fifth NATIONAL CHEMICAL EXPOSITION (also includes National Industrial Chemical Conference), Chicago (Ill.) Coliseum.
- Oct. 16—TEXTILE OPERATING EXECUTIVES OF GEORGIA, Chemistry Building, Georgia School of Technology, Atlanta.
- Oct. 16-17—Annual meeting, NARROW FABRICS DIVISION, COTTON-TEXTILE INSTITUTE, INC., Carolina Hotel, Pinehurst, N. C.
- Oct. 21-23—Annual convention, AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS, Sheraton-Bon Air Hotel, Augusta, Ga.
- Oct. 21-23—COMMITTEE D-13 ON TEXTILE MATERIALS, AMERICAN SOCIETY FOR TESTING MATERIALS, Washington, D. C.
- Oct. 30—EASTERN CAROLINA DIVISION, SOUTHERN TEXTILE ASSOCIATION, Erwin Mills Auditorium, Durham, N. C.
- Nov. 6—SOUTH CAROLINA DIVISION, SOUTHERN TEXTILE ASSOCIATION, School of Textiles, Clemson (S. C.) College.
- Nov. 11—Annual meeting, COTTON-TEXTILE INSTITUTE, INC., Plaza Hotel, New York City.
- Nov. 18-19—Annual meeting, TEXTILE RESEARCH INSTITUTE, New York, N. Y.
- Nov. 29-Dec. 4—18th NATIONAL EXPOSITION OF POWER & MECHANICAL ENGINEERING, Grand Central Palace, New York, N. Y.
- Dec. 4—SOUTHEASTERN SECTION, AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS, Atlanta, Ga.
- March 7-9, 1949—Annual meeting, NATIONAL COTTON COUNCIL, Los Angeles, Cal.
- March 31-April 2, 1949—Annual convention, AMERICAN COTTON MANUFACTURERS ASSOCIATION, Palm Beach-Biltmore Hotel, Palm Beach, Fla.
- May 8-12, 1949—AMERICAN TEXTILE MACHINERY EXHIBITION (and Associated Industries), sponsored by National Association of Textile Machinery Manufacturers, Atlantic City (N. J.) Auditorium.
- June 27-July 1, 1949—Annual meeting, AMERICAN SOCIETY FOR TESTING MATERIALS, Atlantic City, N. J. (A. S. T. M. Committee Week and Spring meeting, Feb. 27-March 4, 1949, Chicago, Ill.)

Realism Needed

OF late there appears to have been an increasing tendency on the part of some owners and awarding authorities to receive bids on construction jobs and then to withhold further action pending the advent of that elusive and unforeseeable day when, construction prices will be lower.

America progresses through construction. The lives and welfare of the nation's citizens, no less than the growth and progress of commerce and industry, are dependent on the orderly continuation of essential and desirable construction. The human needs that construction must serve are as varied as the requirements of life. Construction, other than that required in the winning of the late war, was at a virtual standstill for a period of several years. The ground lost during those years must be recovered.

It is acknowledged that construction costs are high, but every index of comparative costs definitely points out the fact that, compared to the costs of practically all other types of commodities or services, the costs of construction have increased in a substantially smaller degree.

As to the day when construction costs will be lower: when will labor costs be less? When will material and equipment costs come down? When will freight rates be reduced? We venture the assertion that none of these reductions will take place unless this nation falls into the grip of a major economic catastrophe, which we pray will never happen.

The skill, ingenuity and imagination of the construction industry is hard at work attempting to guard against further increases in costs, and results of recent months seem to indicate that these efforts to hold the line are being relatively successful.

It costs contractors, however, considerable sums of money to estimate jobs and prepare and submit bids. When no action is taken on the bids, or all bids rejected, those sums of money, if the contractor is to remain in business, have to be absorbed somewhere. The

only resort is to put those costs into the next job to be bid. Such procedure certainly does not tend to bring about a reduction in ultimate costs.

Architects, engineers and owners are urged to use realistic methods in preparing preliminary cost estimates. When sufficient money to build a project with frills is not available, let's eliminate the frills in the planning stage, cut the pattern to fit the cloth, and get the job built.

Construction costs cannot be reduced by rejecting bids.—From *Weekly Bulletin* of the Carolinas Branch, Associated General Contractors of America, Inc.

Room To Grow

THE average American is now consuming close to 32 pounds of cotton a year, which is seven pounds more than he used a decade ago, according to figures compiled by the Southern Regional Research Laboratory of the Department of Commerce.

Annual consumption for each person equals about 140 yards of 36-inch material. That is enough cloth to make 16 bed sheets or 42 work shirts.

It used to be said that the problem of cotton surpluses could be solved by inducing each Chinaman to lengthen his shirt a few inches. In like manner the accumulation of new surpluses now might be forestalled to a large extent if every American could supply fully all his needs for cotton fabrics and clothing.

A great many families could double or triple their supplies of cotton goods without having an oversupply on hand. And think of the dent the men could make in a surplus by forcing themselves to wear cool cottons instead of warm woollens in hot weather.

Cotton is still far out in front of all other fibers for use in clothing and household goods. It takes care of about 61 per cent of these needs. And still there is room for its wider adaptation and uses. It is to the advantage of the South to continue to find new uses for its "white gold" and to promote its full use by every family.—*Greenville (S. C.) News*.

The Industrial Draft

IN the excitement over the passage of the draft bill some weeks ago Congress, and because of the interest in the application of the law to individuals, little attention was paid to the sections which draft industry. Now businessmen all over the country are realizing that summary powers were given to the President under Section 18; and that is entirely possible that in the spending of between 14 and 20 billions of dollars on defense some wartime controls may again be effective.

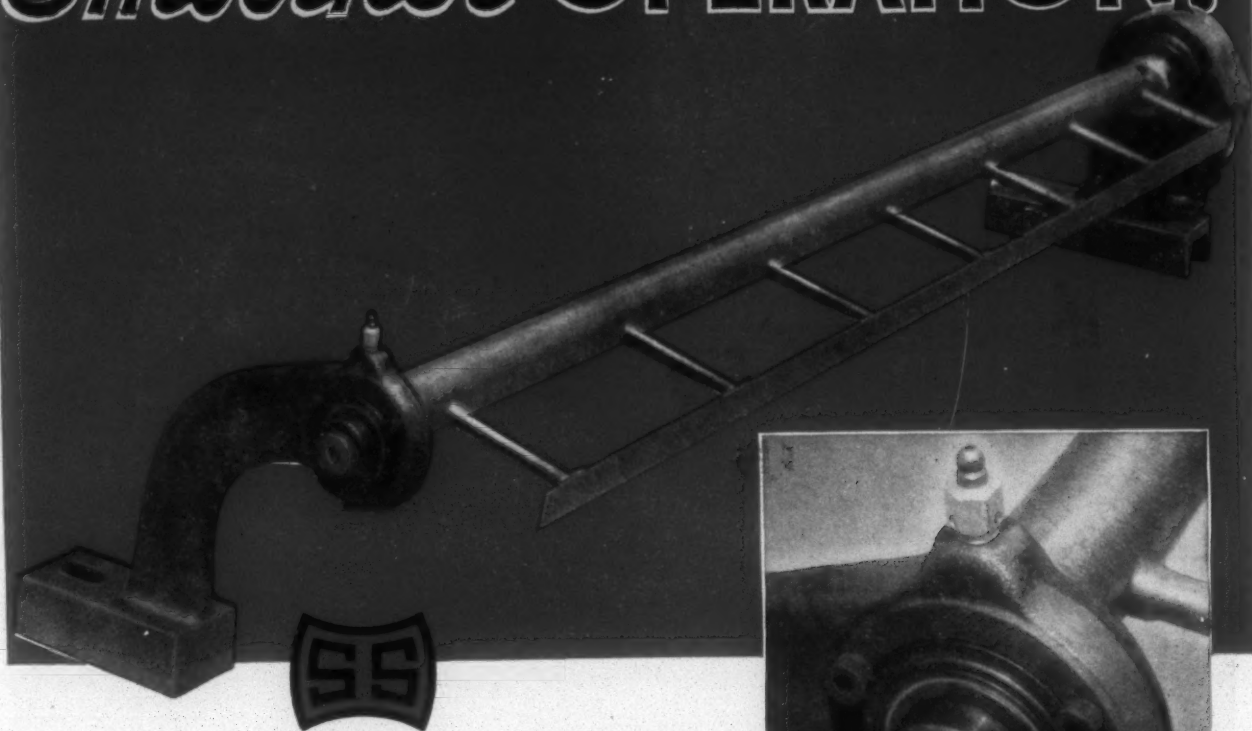
In Section 18, under "Utilization of Industry," the President is empowered, when he has been told that any articles or materials are necessary for the defense program or the Atomic Energy Commission, to place orders with any plant, mine or facility in such quantities as he deems appropriate. He is required under the act to recognize small business. The definition of a small business is that it must not be dominant in its field, must employ fewer than 500 persons, and be independently owned and operated.

But here is the heavy artillery of the industrial draft section. The plant with which the President places an order must give it the precedence he prescribes. In case the plant refuses or fails to do so at the negotiated price, the President is authorized to seize the business. Any person or officer of a company who wilfully fails or refuses to "carry out any duty imposed upon him" shall be guilty of a felony, and may be imprisoned for three years and fined up to \$50,000.

Further, the President is empowered to require all steel producers in the United States to allocate tonnage to producers of defense equipment. The President can specify the allotments, and such orders take precedence over "all orders and contracts theretofore placed with such producers."

Here are war powers in peacetime, and no mistake about it. No wonder that businessmen are talking again of controls. — *Chattanooga (Tenn.) Times*.

Smoother OPERATION!



BALL BEARING OFF-END STAND . . .

Here's the companion piece to Southern States' Ball Bearing Comb Box . . . the Ball Bearing Off-End Stand! This new Stand is designed to provide smoother and completely leak-free operation of your Comb Stocks. It is available for all current makes of cotton cards.

A completely sealed bearing unit, this new stand—when used in combination with the Southern States Ball Bearing Comb Box—eliminates the possibility of oil damage at the front of the card. While adjustments can be made at the Comb Box, the new Ball Bearing Stand will correct **minor** misalignment of the Comb Stock.

Southern States makes available to you **now** either separate unit or combination replacements of your old, worn-out comb boxes, comb stocks, and off-end stands. Purchase them individually or take advantage of complete replacement by ordering the three units at one time. Specify make of cotton card when ordering.

NEW-VERSATILE!

Replace old sleeve-type bearings with the new Southern States Ball Bearing Off-End Stand. Adaptable to **any current make of cotton card**, this efficient unit is completely **sealed**, requiring a minimum of attention. Simply and quickly installed, it is available for either right—or left—hand mounting and can be reversed **right in your cardroom!** You can insure more accurate comb setting—retain this accuracy for the life of the bearing.

We invite your inquiry on any one or all of these items . . .

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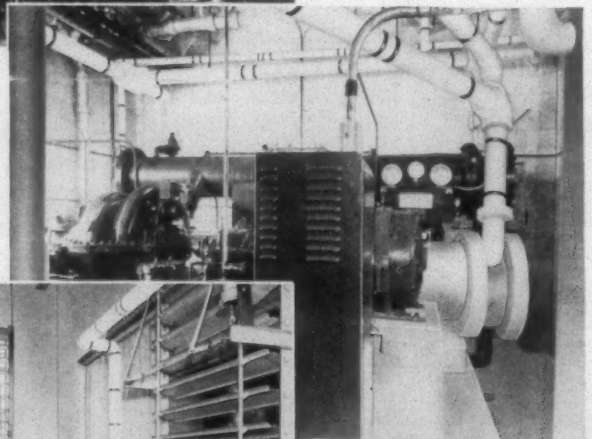
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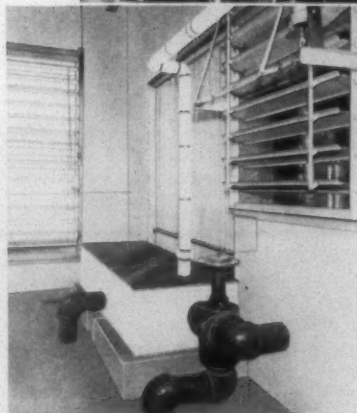
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Number Of Employee Restaurants Increasing

By M. J. RADY

FOR years, the traditional symbol of the American worker has been the dinner pail and it is not so many years ago that the great majority of workers in the textile industry carried the mid-shift meal from home to work, and ate it seated on a convenient crate, box or bench. Yet, today the dinner pail as a symbol has about disappeared in the mills of the United States. We have, instead, a growing number of employee restaurants.

World War II brought many changes in the eating habits of workers in this country. With vast war plants springing up in remote sections, with pressure brought on management to develop greater and greater production, management turned in desperation to in-feeding—the employee restaurant—cost no consideration. The big idea was to save time.

However, an interesting discovery was made. The restaurants saved time all right, but it was noticed that they brought other advantages as well—advantages not looked for. Because in addition to saving time they also proved that they can give a boost to morale and make important contributions to industrial relations. For this reason the extension of the in-feeding policy in the industry is thought to be certain from now on.

These advantages benefited employees and employers alike. Workers got better food at lower prices, a place and an opportunity to meet, to eat with their friends. Management found that the appeal of "one last cup of coffee before work" proved to be an attraction that reduced starting-time tardiness. Hot lunches pep up workers' energy, rest period

snacks relieve fatigue that leads to errors, accidents; feeding helped keep production rates up.

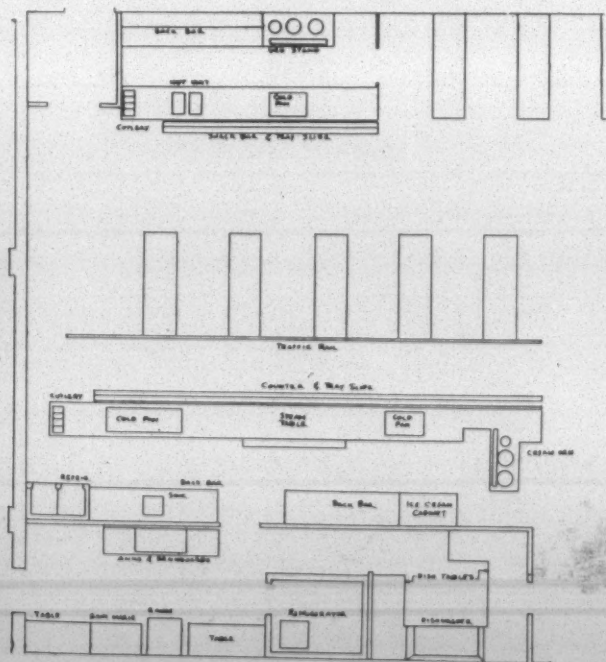
However, management got the greatest benefits by the obvious improvement in the attitude of workers toward the organization employing them. In more than one of these organizations, the employee restaurant created a vastly improved spirit that, in turn, helped to solve many of the minor headaches to which management is so often subjected.

Without doubt, the experiences of leaders in our field, in this department of management, is of special interest to the field as a whole, because of the many and complicated problems which have resulted in industrial relations during the post-war era. Fortunately, recent surveys have been made on "in-feeding" which produce some answers to many questions. This canvass of representative employers that have had experience with organization restaurants showed, three to one, that workers were found to be more co-operative, while there was almost a 50-50 opinion that, on premise feeding reduced labor turnover—helped hold good quality employees.

The convenience (and appeal) of a well-run employees' restaurant has also proved a real attraction to the better-type employee, the type that is a steady element in the force;



A chance to chat after the mid-shift meal helps build morale among workers.



Floor plan for a typical plant restaurant.



Self-service saves time and reduces the number of employees needed to operate the restaurant.

in fact, one company that employs an almost irreplaceable type of highly skilled worker, points to the employee cafeteria among other attractions at a new branch as *extra inducement* that has persuaded 90 per cent of the employees to travel some 30 miles when the plant was moved recently.

From among a group of employers who have had experience with this development, 83 per cent held that the benefits to management are sufficient to make them believe a greater part of industry will provide employee feeding facilities in the future. There are few subjects on which labor and management fully agree today, but the one question of in-plant feeding is one on which they now see eye to eye. (In a recent survey among personnel directors and local labor leaders, both groups pointed to the company restaurant as a factor in improving labor relations.)

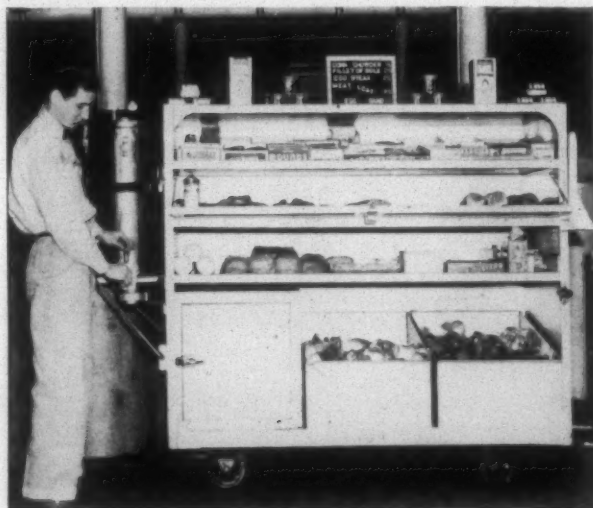
While it has always been a military axiom that an army travels on its stomach, it is only recently that management has come to realize that food and a worker's well-being are factors that effect production and profits. Supervision of employees' diets, adequate and nutritious foods are "steam to the human boiler," and, while the employee sometimes suspects that there may be a little too much paternalism in watching over the general health, the end has justified the means.

Employee restaurants today are nearly always the responsibility of organization management. There are a few cases where operation of the restaurant is in the hands of an



Kitchens are equipped with all types of food preparation equipment.

employee co-operative, but this type of operation is not likely to spread, because running a restaurant is *not* a job for amateurs. When management takes proper responsibility for the company restaurant, it has a choice of method of operation. Either it runs the restaurant itself, or it shares the responsibility *with* a professional restaurant management concern. Among management men who have an opinion, more than half of them express a preference for the "contractor-operated" restaurant. This reflects a familiarity with such arrangements and a desire to have someone run the restaurant "who knows his business as we know ours." (Suggested reading on this topic, *Industrial Feeding*, Crotty Bros., 137 Newbury Street, Boston 16, Mass.) Naturally, the type of food service will depend on the number and type of employees, conditions, facilities available, as well as on the aims and desires of management. However, these forms of food service are open to management: (1) vending machine service, (2) company-operated restaurant, (3) professional contractor-managed restaurant, (4) operation by labor union.



The food service cart is used in some plants to supply full-course meals.

The advantage of the company-owned cafeteria is that it gives direct control of personnel and service. However, it puts the company into the restaurant business, which means the employment of a chef, experienced restaurant manager, counter help. The manager must be responsible, under management supervision, for menu planning, food purchase, preparation and prices . . . and for the delicately balanced economics of such a feeding operation.

Running an employee restaurant is a specialized business. Extemporaneous food buying, inexperience in storage, or mistakes in judging the requirements of any labor force may quickly lead to excessive costs. The professionally-managed installation, working closely with the organization management, integrated with, and carrying out, company policies, permits management to exercise its rightful responsibility to its employees in every phase of a feeding service. In addition, it benefits company wise, from the advantages of planned, large-scale food buying, know-how in menu planning, and statistical experience in what different types of workers want.

One of the larger professional restaurant contractors reported recently that while some employee restaurants are run on a self-sustaining basis, the recent trend is decidedly towards a non-profit-making operation. Andrew J. Crotty,

Jr., spokesman for this Boston firm, explains this trend by saying: "When the factory cafeteria was thought of merely as a convenience for employees, management expected it to pay its way. But since business has discovered that in-plant feeding has other benefits, notably in the field of worker-management relations, manufacturers show an increasing willingness to absorb part of the operating cost and find such expense more than justified on the balance sheet."

Some employee restaurants are run on a self-sustaining basis. The smaller organizations having a light load factor, usually absorb a nominal monthly service fee as a logical operating cost. The trend is decidedly towards a non-profit making restaurant operating with management recognizing that the many benefits accruing are worth the small costs involved. In certain cases these benefits have a value to management that warrants furnishing food to employees at actual food costs, the service of the cafeteria being entirely an employer expense.

Management in the textile industry is coming more and more to realize that it has an investment in the human machines, and that workers are human beings whose enthusiasm for the employers and products have a definite relationship to efficient production. The American working man and woman doesn't like being a cog in the industrial machine, designated by a number. He has competitive instincts, yearns to be "on the team" . . . challenged by his urge to get things done when he is recognized and appreciated, made to feel a "part of things."

Atlanta Called World Textile Waste Capital

Atlanta, Ga., is the world headquarters for the \$80,000,000 to \$100,000,000 per year textile waste industry, according to Erwin G. Baumer, president of the Automatic Waste Co. of Atlanta and recently elected president of the Textile Waste Exchange, a national organization. About 700 concerns in the United States handle cotton waste in one way or another, Mr. Baumer said, there being 18 or 20 such firms in Atlanta.

Atlanta is the textile waste capital, he explained, "because its dealers are the most active and reliable, and because there is more waste available in this section than elsewhere." Mr. Baumer pointed out that cotton waste first began to be used in quantities in this country in the late 1920s. Before then, 60 per cent of it was exported for use in making cheap-grade cotton products.

Durene Association Issues Unique Folder

The Durene Association of America recently has issued to the trade an unique and attractive folder relating the old Siamese story of "The Queen's Ring or the Tale of A Cat." The story concerns a well-intentioned but forgetful Queen, a magic ring of remembrance and a cat with a remarkable memory. To help remind the customer of the unique quality of Durene multi-ply mercerized combed cotton yarn, a replica of the magic ring of remembrance was attached to the folder.

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Happy Feet Produce More Textiles

By EDWIN B. CALLAWAY, Textile Information Service Roving Editor

FEET are exceedingly useful appendages for everyone, but it remained for officials of the Fulton Bag & Cotton Mills in Atlanta, Ga., to discover that aching arches or bunions have a direct bearing on textile production.

After coming to the decision that callouses and corns affect the health and happiness of employees and tend to cut output per worker, Fulton Mills established a unique industrial foot clinic. It is the only clinic in the South, and possibly in the nation, where workers can receive free treatment for the ails that plague the feet of mankind. In operation since March, 1947, the clinic has achieved such substantial results that other concerns are considering installation of similar units.

Troy B. Stone, personnel director of the mill, says the clinic has aroused much interest among industrialists and businessmen in all sections of the country. A big textile mill in South Carolina has sent representatives to study the plan, and one of the largest department stores in Atlanta has become keenly interested in operations. From the number of inquiries he has received from factory management, trade associations and other groups, Mr. Stone is convinced that industrialists and businessmen seeking to reduce absenteeism and increase production may soon be getting at the foot of the trouble, literally.

The idea of a foot clinic at Fulton Bag & Cotton Mills was conceived by Mr. Stone, while watching a change of shifts at the big textile mill. He noted how workers leaving their jobs often looked tired and sometimes limped away from their machines. At the same time, employees arriving for duty were fresh and full of pep. Mr. Stone carried his observations a bit further. On the following morning he checked the employees who had been so weary the day before. They were full of energy and walked vigorously. By the end of the shift they were again more tired

than their mates, and he reasoned that aching feet were mainly the cause.

"When I questioned the workers," the mill executive reports, "often their only complaint was, 'Mr. Stone, my feet hurt.' I know exactly what they meant, for my feet ache sometimes. And when your feet hurt, you hurt all over." This trait is not peculiar to the textile industry. Watch tired office workers as they shuffle to catch a homeward bus. Or housewives surreptitiously slipping off shoes during a bridge game or at the movies. Or golfers sighing with pleasure as they take off their cleated shoes after a round of 36 holes.

Mr. Stone presented his idea to the management of Fulton Mills, which is noted for good labor relations, and the foot clinic was quickly authorized. Within a short time, equipment costing approximately \$3,000 was installed in offices at the Jacob Elsas Nursery and Clinic, erected during 1946 in honor of the mill's founder. Dr. Lemmie L. Henry, Atlanta podiatrist, was retained to give treatments.

Other Health Services

The foot clinic, a brand new conception of medical facilities for an industry, was not the first step in an extensive health program at Fulton Mills. The Jacob Elsas Clinic is staffed by a full-time physician, two full-time registered nurses, and a clerk. First aid cases are handled at the clinic, and employees and their families may receive medical advice and treatment.

In another section of the building is the dental clinic, over which an Atlanta dentist presides for two afternoons and three mornings each week in order to make his services available for all shifts. He fills teeth, makes plates, examines pre-school children and carries on the other phases of dental practice. Only a nominal charge is made for professional services and materials, cutting the cost of expert dental care to about one-third the usual expense. Besides being given routine tests for eyesight and hearing, each of the plant's 2,285 employees has been X-rayed through facilities of the Atlanta Tuberculosis Association in co-operation with the Atlanta Health Department. All tests are taken voluntarily.

Under the leadership of President Norman Elsas, the mill has expanded other services for the benefit of employees. Pre-natal and well-baby clinics are held regularly. Working parents may leave their children in the modern nursery, where six matrons and 17 maids are in charge. At a cost of only ten cents a day, each child receives balanced meals, is bathed, given supervised play, and has his individual bed to sleep in until his mother can come for him. The nursery, operated during all shifts, enables approximately 900 parents to work.

The foot clinic, an innovation in industrial fields, has already paid dividends, according to Mr. Stone. Foot aches are so universal that he credits proper treatment with

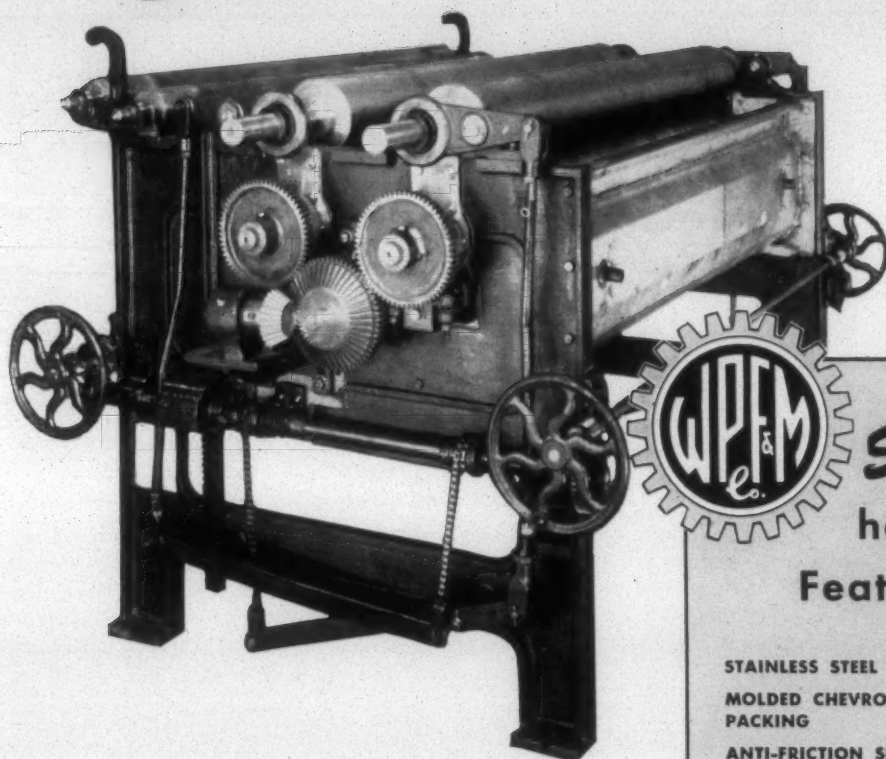


In the picture above Mrs. Clarissa Elrod, sewing department employee at Fulton Bag & Cotton Mills, is being treated by Dr. Lemmie L. Henry, podiatrist in charge of the mill's modern foot clinic. Assisting him is Mrs. Virginia Owens, R. N.

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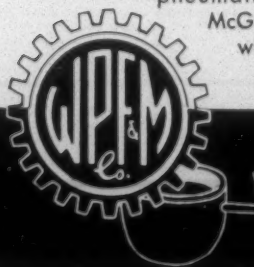
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The WPF&M Size Box has the up-to-the-minute improvements necessary for top performance. The replaceable, all-welded stainless steel vat, with steam jacket if desired, supported between two sturdy, accurately machined cast iron side frames, has a capacity of 55 gallons.

Size rolls, with either heavy brass or stainless steel shells, and squeeze rolls are mounted on ball and anti-friction bearings in accurate alignment, reducing friction and stuffing box wear to a minimum. Deep brass stuffing boxes with six rings of chevron type packing provide superior sealing and extra protection for size roll bearings. Plain or cage type immersion roll can be brass or stainless steel.

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definitely reducing absenteeism, increasing production and boosting morale. While exact statistics are admittedly almost impossible to compute, the personnel director says the clinic has cut absenteeism as much as ten to 12 per cent.

All facilities of the clinic are available without charge to the employees, and almost 900 persons have received treatment since the unit was opened. The mill hopes soon to be able to extend services to include families of all workers. Dr. Henry, the podiatrist in charge, visits the clinic for several hours daily. He staggers his office routine so that workers on all shifts may conveniently call for consultations.

Most Common Foot Troubles

Records of the doctor reveal that callouses, athletes foot, ingrowing toenails, arch troubles and corns top the list of complaints. Thus far, for instance, he has treated almost 400 cases of troublesome athletes foot. There was a siege of athletes foot in the plant shortly after Dr. Henry began work. To halt its spread, he advised the mill to place disinfectant basins and mats in showers. Explaining the importance of cleanliness to employees, he recommended that everyone wash his feet carefully at least once a day, wear white hose that could be boiled, and wear perforated shoes when possible to permit free circulation of air.

For everyone prone to callouses he recommends properly-fitted shoes with thick soles. In fact, he advises thick-soled shoes for everyone who must walk a lot or stand for any considerable period each day. Insufficient protection to the bottom of the feet, he says, is conducive to the painful callouses. Dr. Henry has a stock caution to present his clients: "Never buy shoes by size," he admonishes. "Buy for fit." He thinks that few persons nowadays buy too small shoes from vanity, but he is convinced that many women buy shoes made on incorrect lasts for reasons of style.

Most of the patients at Fulton Bag & Cotton Mills are able to find correctly-fitted shoes in stock at good stores. For those who cannot, he makes arrangements for specially-built shoes or individually-fitted arch supports. As for causes of ingrown toenails, the podiatrist says, too short stockings or socks are as great offenders as tight shoes.

Occasionally surgery is necessary to cure a deep-seated complaint, but two or three treatments are usually sufficient to send the worker back to his job on happy feet. And happy feet are important. Dr. Henry says foot ailments lead to aching backs, bad posture, headaches, spines out of line, and systemic disturbances. No wonder, he explains, that employees with aching feet sometimes play hooky.

Medical facilities at the Jacob Elsas Clinic are closely co-ordinated. Sometimes the staff physician sends a patient to Dr. Henry or to the dentist. In return, the podiatrist or dentist often tell their clients that a call on the physician would be in order.

Increased efficiency from the many medical services at Fulton Bag & Cotton Mills has paid dividends for the company in employee relationships and better production, but there are other, less tangible returns. The plant management particularly likes to tell of one woman who had come to the foot clinic for treatment of long-standing callouses. "Why, doctor," she exclaimed delightedly to the podiatrist, "this is the first time in 15 years that I have been able to put my foot down flat."

MAN-BUILDING POWERS

— Job Analysis —

Part Three of a Series by W. M. McLAURINE

THE textile industry is so old that, until the last few years it wreaked with conservatism and tradition. Men and machines and methods were hoary with age and were more sacred than the properties and modes of society south of Broad Street in Charleston and the beatitudes of the Brahmins of Boston. Within the last few years, a revolution has taken place—perhaps a better word is renaissance. Mill properties and equipment have been renovated by the magic sweep of science. Men, machines and methods have been analyzed and scrutinized — new types of managers and supervisors have come in, new types of machines, new types of operatives, new methods of work—new constructions, new methods of sales—in fact hardly any phase of the textile industry has escaped the age of enlightenment and progress. The entire program of tradition and conservatism falls back now when science shows something better.

The "Training Within Industry" program proved conclusively that men with knowledge of job requirements could take potentially unskilled men and make operators out of them more rapidly and more efficiently than did the old "trial and error" method. These courses were predicated upon the theory that they had made job analyses and knew the skills required and with that knowledge they picked their manpower possibilities and trained them.

The textile industry is an old industry—a family industry—most of its jobs are not highly skilled, therefore most training for these jobs has been to allow the possible new and inexperienced worker to come into the mill and gradually "grow up."

There have been changes from this system in many plants. Some have regular training schools, others have certain people within the plant with whom these new people work until they are ready for job assignment. In other cases there is still the infiltration and absorption method.

Every overseer and superintendent of a textile mill knows that there are wide variations in the production capacities of his people. If he does not realize this, he can count the looms operated by each member, or the spinning frame sides. He can watch his bobbin fillers—he can count the time of doffers on stopped machines—the ends down and loom stoppages—these and many other tests will show to him that there are often wide ranges of production capacity even when construction and working conditions are approximately identical. This fact indicates two possible conditions—one, a difference in the reaction time and skill in the operators and two, a difference in training.

There are often many ways to do a job, but there is always a best way, and the best way is nearly always the most efficient and easiest. A serious study of the best and most highly skilled operatives will show what these requirements are. A study of the slow and inefficient operatives will reveal what the defects are.

This careful and analytical study of job operations will

give to the overseer or superintendent first-hand information on the operation of the machine and the manipulative skills required and an ability to overcome the erroneous methods of the slow worker.

To refer again to progress, to refer again to traditions and conservatism, we shall find that in too many places, "Topsy, the spinner, Topsy, the weaver" still grows up and often she makes a fairly good operative but she never does her best because she has not been scientifically and intelligently trained.

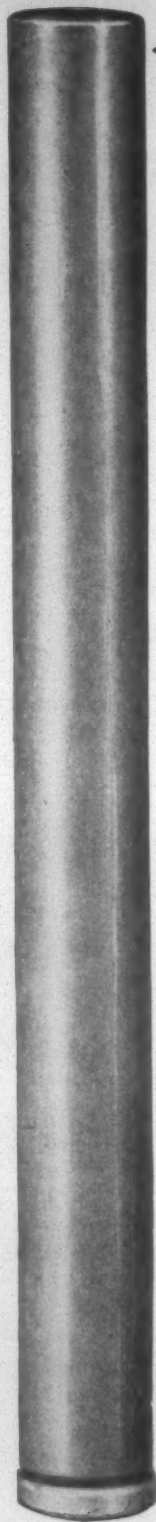
Every superintendent and overseer knows in a general way what the job requirements are but most of them have never made any analysis of what it is that the good operatives do that make them good, and what the bad or poor operatives do that make them slow. The writer realizes that the personal element of operatives enter this discussion and often that is given as an excuse or alibi by the overseer or superintendent.

I read a story recently of an industry making a certain type of ball that required inspection. There were some 25 girls doing this job. One day the supervisor had a brilliant idea and stood watching the girls do the job. At least the two top girls inspected double the number of balls that the slow girls did. The supervisor had another brilliant idea as he took his notebook and pencil and began to make observations. He soon found out why the fast girls were fast and the slow girls were slow. He then organized his girls into a class and soon 15 girls were doing the job as easily and accurately as the entire 25 were. The other girls were then transferred to positions more nearly fitting their capacities.

Job analysis, and job instruction, plus fitting the right person on the job, does not mean stretch-out or speed-up. In most cases, as in our best and most efficiently operated mills today, workers are operating more machines and getting greater production but their jobs in scientific plants with improved machinery and better methods are really less exacting and less fatiguing than under the old system.

If wages are to remain satisfactory and hours at present standards, with the competitive situation becoming more acute each day, production per machine and per capita must make survival possible. Job analysis, proper employment, efficient job training can make this possible.

The New England Textile Foundation recently awarded 24 freshman scholarships for the 1948-49 scholastic year. Sixteen of the scholarships are at Lowell Textile Institute, four at the Textile School of Rhode Island School of Design, and two each at New Bedford Textile Institute and Bradford-Durfee Technical Institute. The scholarship has a value of \$500 a year and will be renewed in the sophomore, junior and senior years provided the student obtains satisfactory marks.



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Extension Of Pin Control In Worsted Type Yarn Processing

By JAMES R. LONGSTREET

Chief Engineer, Textile Division

Warner & Swasey Co., Cleveland, Ohio

OVER many years there have evolved two major systems of worsted type yarn processing: the Bradford or English system, and the French or Continental system. Lately there has been attention focused on another system, viz., American, which is an attempt to utilize existing cotton machinery or modifications of this equipment to the processing of worsted type yarns.

All three systems have a common series of operations through the combing operation. Following the comb, we find the points of divergence in actual operations. Up to and including the comb, the processes are concerned with the cleaning, straightening, and elimination of fiber elements that cannot be controlled. So far in the processing, pin control has been the predominant factor. Depending on the system used, pin control beyond the comb occurs in varying degrees.

The Bradford system has grown out of the handling of the longer staple wools reflecting their English origin. The French system has adapted itself to the shorter and finer combing wools of Merino origin. The American system has grown from the attempt to utilize the very short combing wools and to adapt the longer fibers, either through breakage or cutting to suit existing cotton yarn processing machinery or modifications of this equipment, taking advantage of multiple drafts.

The ultimate aim in making any worsted type yarn is to accomplish parallelization and complete dispersion of the varying lengths of fiber to a uniform evenness of distribution all the way through the various operations to yarn production. To accomplish this, control of the shortest fibers is essential. It is in this control that the systems vary and have their weakness.

In the Bradford system, enumerating the various operations through spinning, on the average, we find the following beginning with the comb: comb, first finisher gill, second finisher gill, can or blend gill, spindle gill, intermediate draw, finish draw, reducer, one or two stages of roving depending on yarn count, spin. The first two operations of finisher gill are pin control acting as correctives for the comb, bulking of the stock, and presenting the stock in the form of ball top for ready handling and shipment. Note that I say bulking of the stock. The blend box or can gill may be omitted, depending on the type of finished yarn to be produced. Essentially it is a leveling and blending operation under pin control. The next operation, also pin control, is a reducing operation and changes the form of package from either a can sliver or ball top to a relatively smaller bobbin package whereon the character of control has changed from an open sliver to a twisted sliver. From this point on, the package becomes smaller and smaller, and control of the fiber is by twist. Twist is inserted at each successive operation, is drawn out, and reinserted. Pin

control has been abandoned beyond the spindle gill in favor of interfiber friction control plus compression, primarily because, with the existing gill boxes, the reduction in weight of the sliver together with the relative amount of fiber below the actual controlled nip length between faller bars and nip roll results in unevenness of finished product. With the longer staples involved in normal Bradford handling, but little has been done until recently to correct this factor of controlling the shorter length of fiber; hence the gill box has been generally thought of as belonging primarily to the combing industry rather than to the yarn processing industry.

Similarly, in the French system, finishing gill operations follow the comb as comb correctives and bulking of the stock to form commercial ball top. Intermediate operations in the French system are mainly concerned with the complete dispersion of the various lengths of fiber into a uniformly distributed pattern before reducing operations are performed. This integration is by gilling (again pin control). Since pin control represents the fastest method of paralleling fiber, interfiber friction is rapidly broken down and some means has to be provided to re-establish it; otherwise continued pin control would rapidly cause unevenness of sliver. As the French system works entirely on the basis of untwisted sliver, this interfiber friction in the latter stages of drawing is induced through rub action. Pin control is carried straight through to the final operations preceding spinning, but the character of the control changes from the rectilinear one of the gill to rotary in the form of the porcupine.

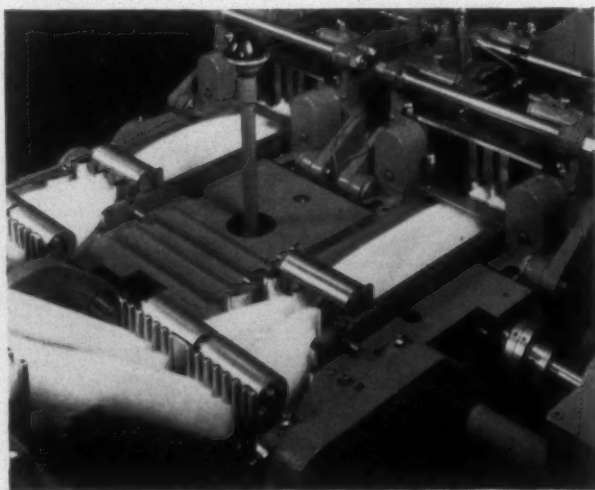
There are definite drawbacks to the porcupine. Due to its diameter, there are limitations to length of nip. Also due to the limited length of the pin and its angular entry, there is a definite limit to the bulk of stock that can be successfully controlled. Both factors affect the long draft possibilities that can be imposed; hence the greater number of operations necessary for reducing. The end product is different from Bradford yarn in that it handles finer grades, incorporates more short fibers, and the fibers worked as an open sliver result in a fuller, loftier yarn and yarn that can be spun to finer counts.

The American system is a fairly new attack on the processing of worsted yarns. Like any new process, it will have

to go through a considerable modification before results can be obtained that will place this system on a par with Bradford or French yarns. Very few mills operating under the American system have their own combing plants. In addition, the present limitations of existing drawing and finishing machinery for yarn processing requiring the handling of shorter fibers pose a problem. The most successful mills working on this system are those realizing the present limitations. They have brought in men with worsted experience and have modified their set-ups from original ideas to combinations that embody both worsted and cotton principles.

I think there can be no question but that ultimately there will evolve a short system of worsted yarn production incorporating the ideas of the present worsted systems with the best of the cotton systems. Some of this equipment is under way at the present time. Even at present there are mills operating, making excellent yarn in counts through single 32s with four operations between the comb and spinning. In detail, three operations of drawing, one roving, direct to spinning. These mills have been willing to do a great deal of experimentation with sizable expenditures of money and manpower, but with gratifying returns. It is needless to say that they don't discuss their methods too freely.

Until recently pin control for the American system has ended with ball top. The average commercial ball top that can be obtained on the open market today is not remarkable for evenness. This, combined with the lack of control that exists in roller drawing of an open sliver and the necessity for breaking long fiber, is one of the first hurdles to be overcome in handling worsted yarn on modified cotton machinery. The next and probably more serious handicap is the tendency to use multiple drafts on variable length staple when not fully controlled. When drafting a variable length staple successively in the same direction with elements of staple out of control, float of short fibers takes place resulting in unevenness. Present indications are that



The new Quad-Delivery pin drafter has been announced by Warner & Swasey Co. as an adaptation of the company's dual delivery machine for processing lighter slivers at full capacity. The Quad-Delivery machine is essentially the same as the dual unit, but with modification of entry and delivery to handle an increased number of ends. With creel arranged to take up to 12 lightweight ends per head (a total of 24 ends for the double-headed unit) the Quad-Delivery machine is suited to high-speed drawing operations where the total weight of entering sliver for each delivery is 400 grains per yard or less. Delivery end consists of four coiling heads and a four-can turntable, and the machine will be particularly useful in third operation pin drafting where the production of two single machines can usually be handled. Added center post in condenser entry prevents interdrafting and lapping, and integrity of each group of ends is maintained through delivery.

in multiple drafting in the same direction, initial drafts must be of an order below two (preferably $1\frac{1}{2}$); secondary drafts can then be high, due to better control, and a fairly good result obtained.

Several years ago my company, in co-operation with a prominent worsted manufacturer, started on a program to develop textile machinery. We were to furnish the mechanical design background, and they were to furnish the textile knowledge. A short system of worsted yarn processing was well along in the experimental stage and it was necessary to get machinery. The primary machine involved was a modified gill box. There were no new fundamental principles involved, but nowhere was there an existing machine that incorporated all the ideas that had been determined experimentally. Years before, there had been a silk gill that had part of the answer, and in France, prior to the war, there had been an interesting gill that had some of the desired elements. From these beginnings and a determination to produce a modern machine incorporating advance design with precision manufacture, came the present Warner & Swasey pin drafter.

Because the gill box had been most intimately associated with the combing industry and was established here as a heavy duty machine, it was decided to differentiate this machine with the name pin drafter to set it apart as mainly concerned with yarn processing following combing operations. In other words, to identify it as drawing equipment extending the field of pin control to lightweight sliver down to the reducer stage of the Bradford system, the forefinisher of the French system, and the long-draft roving frame of the American system.

This pin drafter has been produced by Warner & Swasey since the end of 1946. It does not perform miracles and is not offered as a panacea for all the ills of yarn processing. It does accomplish, however, definite improvement to worsted yarn processing in the way of decreased operations and improved quality of product that reflects saving all the way through finished cloth. The machine is getting broad acceptance in the worsted yarn industry and in many instances is exceeding our expectations. Where it is doing its best work is when mill management is willing to co-operate and experiment to take full advantage of the potentials of the machine and to fit it into their particular system of processing.

The main points of difference between the pin drafter and a gill box are extra long faller bed, in this case $71\frac{1}{2}$ inches with 48 fallers holding the stock at all times. The bed has the same top section length as bottom length. There are no back draft rollers; thus there are no ratch lengths to set. Fibers up to 22 inches long have been handled. In place of the back draft rolls, there is a feed belt and condensers to bulk up the entering stock rectangularly in the pins and to afford a slight drag within the usual limits of crimp recovery. The faller bed runs at a constant rate of speed—nine yards per minute or a faller drop rate of 1,030 per minute—2,060 intersections. All drafts are regulated through the draft roll change gear, which is the only gear change on the machine. The draft roll section is of the three-roll type having an inner fluted nip roll seven-eighths of an inch in diameter and an outer fluted nip roll $2\frac{3}{8}$ inches in diameter. Compressed by spring loading is a synthetic rubber pressure roll to create the nip. This type of drafting set-up allows settings $\frac{1}{16}$ ths of an inch minimum

WHY INITIAL A PRESSER ?

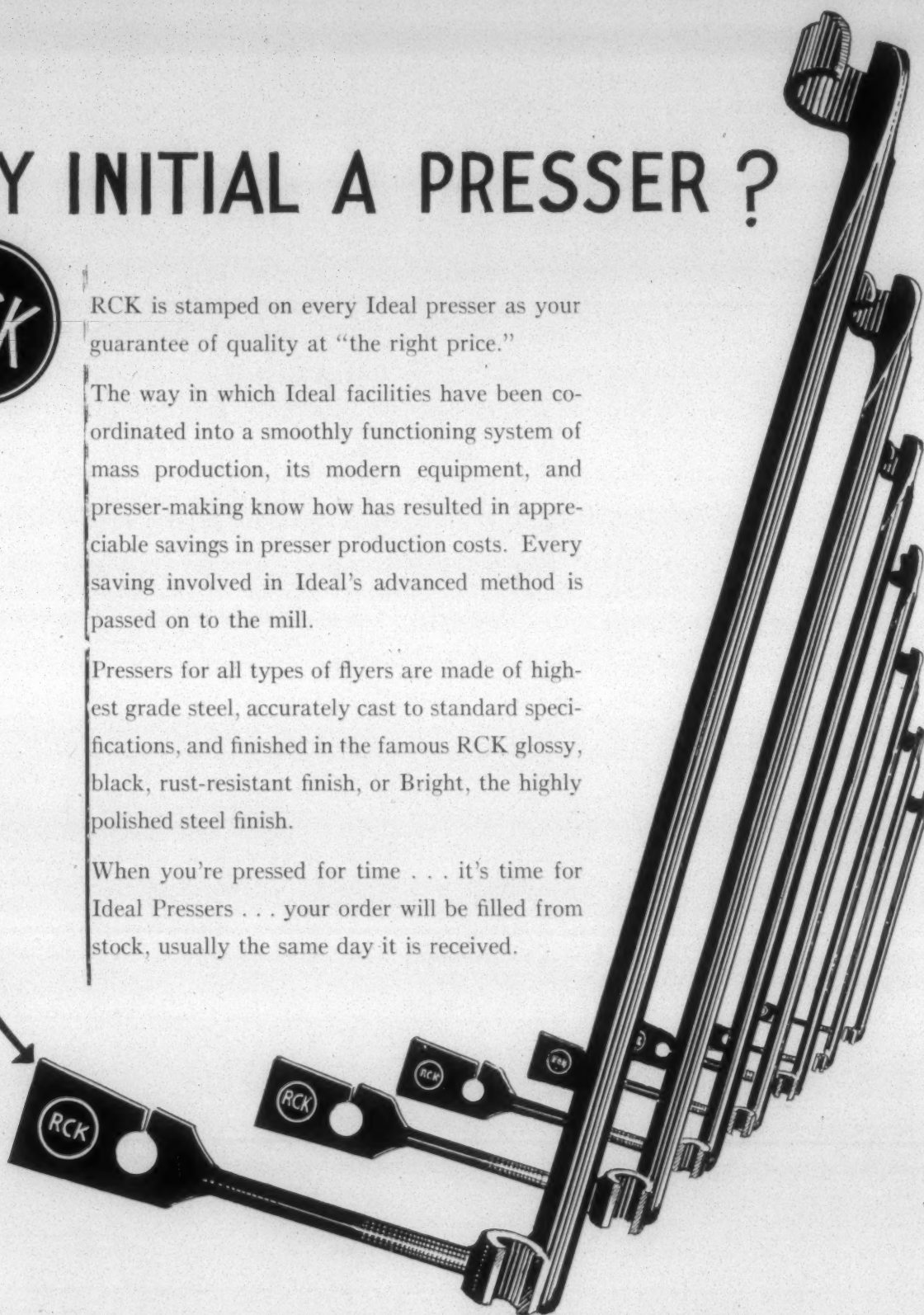
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between the actual nip of the inner nip roll and the discharging faller, and adjustment outward to handle some long staple and synthetics.

The coiler head is conventional with calender rolls located close to the point of discharge to the receiving can. No false twist is employed. A 15-inch can acts as a receiver holding up to 24 pounds of sliver, insuring a large supply package. The machine is adequately protected by safety devices and stop motions for detection of supply ends down, delivered sliver end down, and faller bed laps. A yardage counter regulates the amount supplied to the receiving can. All controls are electrical from four pushbutton stations.

Pinning of faller bars is much finer than encountered in the gill box. While we furnish pinning range from 15 per inch to 34 per inch, most mills use 22 and 29 pins per inch for best results. These pins are flat—not round—having their depth section in the direction of draft for stiffness, and their thin section transverse to the draft to allow flexibility against the unevenness of fiber groups within adjoining voids.

Under normal conditions of loading—1,000 grains per yard of entering sliver to each head of the machine, and an 80 per cent efficiency factor—the production per two-headed machine is 120 pounds per hour. This figure is based on 64s quality and finer. For wools and some synthetics that will stand longer drafts from eight to ten, the capacity is increased up to 20 or 25 per cent, due to increased initial loads. The factor of loading the head is influenced by four elements: (1) nature of the fiber handled, (2) capacity of the pinned length of faller, (3) deflection in the inner nip roll, and (4) slip of the pressure roll when delivered sliver is bulked abnormally.

The factors that make this machine fit so well in the various systems of processing are the following: (1) absence of back draft, (2) wide range of stock qualities and lengths handled, (3) high speed faller action to promote drafting, (4) compensation in the saddles for progressive intersection of fallers in the draft area, (5) flex type pinning, (6) almost complete absence of faller creep at points of entry discharge, (7) absence of selvage edge drafting, (8) short nip control, and (9) absence of waste.

The machine at present is handling wool grades from 40s through 70s and 80s, or to express this another way, any natural crimp fiber, inherent crimp fiber, or induced crimp fiber where the median length of fiber expressed by the combed wool diagram approximates $2\frac{1}{4}$ inches and the minimum staple length approximates one inch. A small percentage of fiber in the diagram lower than one inch can be tolerated without too harmful effects on the accuracy of finished sliver. The maximum length of fiber is unknown, as flax up to 22-inch staple length has been run. This is not desirable but is an indication only.

On synthetics the machine operates equally well over all normal lengths corresponding to wool diagrams and on square cut staple diagrams as low as $2\frac{3}{4}$ inches. Three denier staple is readily handled without pin marking, and experimentally $1\frac{1}{2}$ -denier stock has been run successfully. A certain amount of experimental work is necessary to have the right kind of diagram when working this fine denier stock, and also the loading of the head and positioning of condensers and nip roll section must be watched.

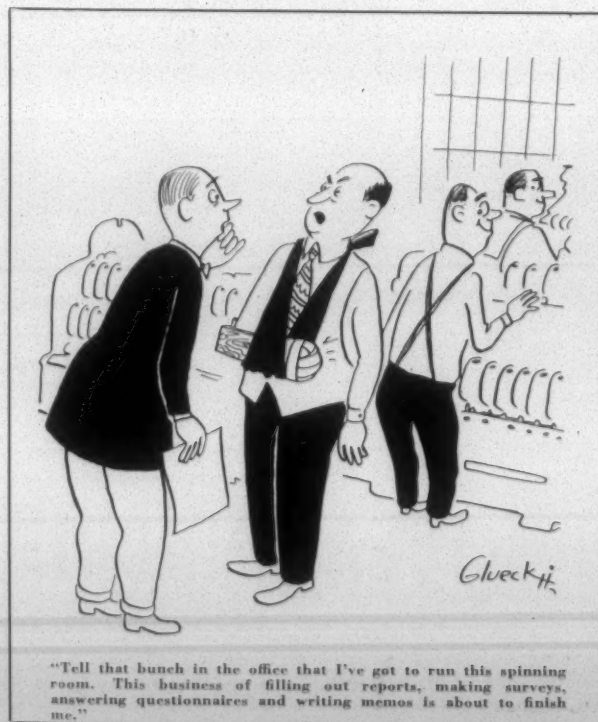
For successful operation on 100 per cent combinations of synthetics, some form of crimp is necessary; otherwise the stock will fall apart after initial pin drafting due to lack of interfiber friction.

I have noted previously that following the comb, there are two operations of gilling common to all three systems. These operations are leveling and bulking and the balling of the stock to form a sliver weight from 220 grains per yard to 350 grains per yard, depending on combing mill practice. The pin drafter can handle this ball top readily enough, but why take these two operations?

In the Bradford system there is no necessity for the finisher gilling. More ends of combed sliver can be taken on the pin drafter first operations, and with the doublings available in three operations of pin drafting, sliver can be delivered of the same evenness and distribution of fiber as results when the initial operations is from ball top. The reason for this is that the pin drafter controls the short fibers. It is a positive fact that if Noble combs were better controlled to give the evenness of comb sliver of which they are capable, all the accuracy necessary for the production of good sliver delivered by the pin drafter could be obtained in two operations.

Due to the set-up that exists in the textile industry, comb sliver is available only to those mills having their own combing facilities within reasonable distance of the combing mill because shipment of stock in any other form than ball top has not worked out to an economical shipping set-up.

In the French system we can work from comb sliver readily, but here the weight factor of the sliver is a drawback. We would prefer to see one operation of finisher gill following the comb to bring the weight down to approximately 200 grains per yard. Then in three operations of pin drafting, we could deliver into the system at weights of 30 to 40 grains per yard with accurate sliver. The American system having been mainly developed through the cot-



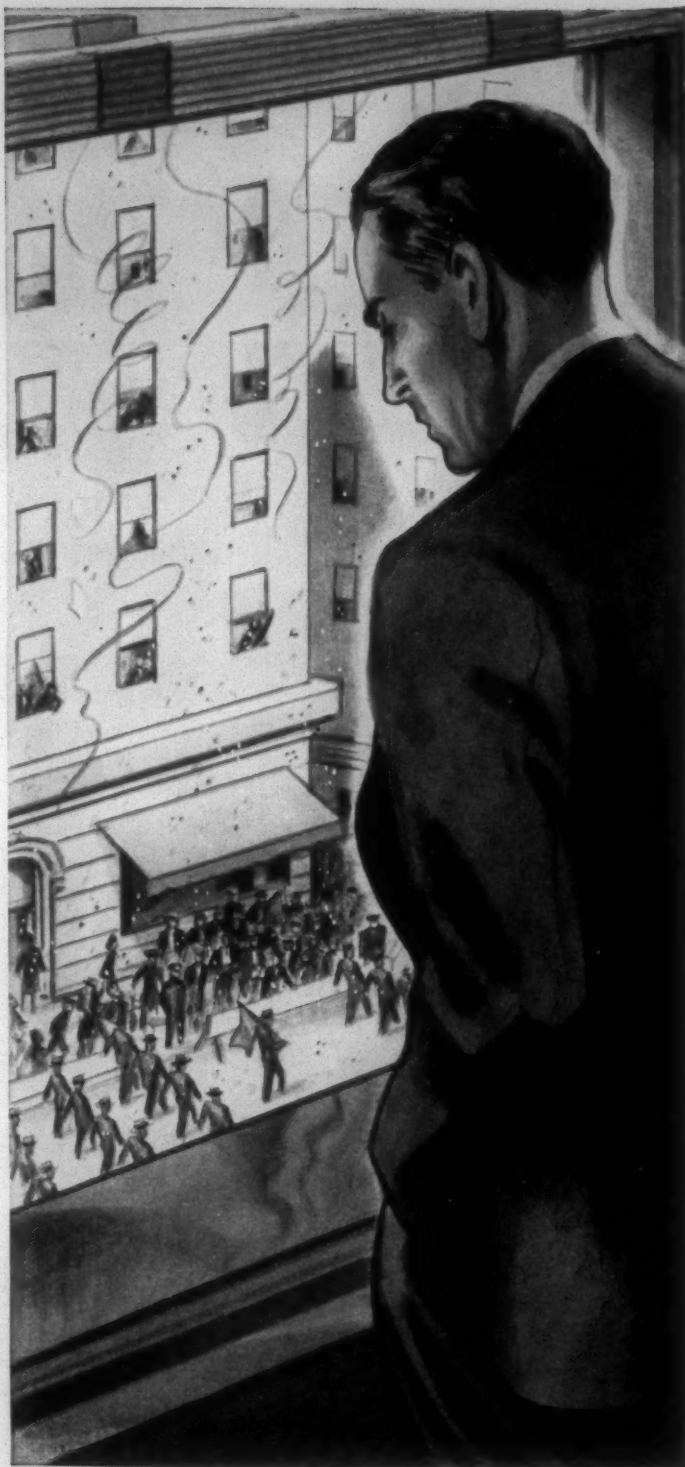
MEMO TO PRESIDENTS WHO WATCHED THE BAND GO BY!

HERE'S ONE parade that isn't "all over but the shouting" after the band has passed. It's the Payroll Savings Plan for the regular purchase of U.S. Security Bonds by employees.

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The Treasury Department acknowledges with appreciation the publication of this message by

TEXTILE BULLETIN

This is an official U.S. Treasury advertisement prepared under the auspices of the Treasury Department and the Advertising Council.



ton mills, is without wool combing facilities; therefore, it has to rely on ball top. When comb sliver is available in shippable form, these mills can work to better advantage.

Because of the above factors as related to comb sliver, we find it necessary to recommend three operations of pin drafting, regardless of the system, but the opportunity exists for those capable of taking advantage of the situation to reduce this number to two.

Summarizing the use of the pin drafter in the three systems, the general set-up is as follows:

For *Bradford*—comb, three operations of pin drafter, reducer, rover, spin.

For *French*—comb, finisher gill, three operations of pin drafter delivering at 30 to 40 grains. The balance of operations depends on the fineness of count of the yarn.

For *American*—three operations of pin drafting from ball top, long draft roving, long draft spin.

When operating on the Bradford system with pin drafters, considerations must be given to the fact that an open sliver is being introduced at a point where formerly control was by twist. This means that condensing means must be applied to the reducer to stimulate the control formerly obtained through twist. When operating on the American system, maximum fiber length that can be handled must receive serious attention. In general, the newer roving frames can be easily altered to handle 64s quality without breakage, and to reduce the break draft and to increase the front draft. If we accept the limit of $3\frac{1}{2}$ -inch fiber as maximum without alteration of the roving frame, a breaking or cutting operation is indicated.

To obtain specific figures on savings possible when using the pin drafter is difficult at this time. In an industry that is so highly competitive as the textile industry, the individual mill finding itself in an advantageous position discusses its savings with a minimum of detail, to say the least. We know positively, however, that the savings are there for those who will take advantage of them. Some mills will never realize the advantages. They expect a cut-and-dried answer to a problem that has no common answer. With all the variables that exist in natural fibers and synthetics with their combinations, there can be no common answer. There is still a great lack of instrumentation on the part of the mill operators for control of processing. It is too late to correct processing errors or take advantage of shortened

operations, once yarn is spun. But for those mills taking advantage of the situation, we can definitely cite savings. For instance, between comb and reducer or comb and long-draft rover, three girls as a unit can handle as many as 26 deliveries from the pin drafter, replacing the entire processing operations between comb and reducer or long draft rover. Waste is reduced to a negligible factor. In fact, waste developed in the pin drafting stage is an indication of negligence. With the more accurate sliver obtained from the final operation of pin drafting and a large supply package to the subsequent operation, increased production is assured. A broken end in the sliver can be unusual and unnecessary. With less variation, the efficiency of spin is increased. Better yarn reflects through all subsequent operations, including final repair of fabric. One mill in particular has quoted an over-all 35 per cent gain. In section beaming alone, there was reported a 50 per cent gain in production. Another mill found its cone winding so much more efficient that the set-up had to be revised. In several instances where quality was the major factor, the pin drafter made the difference between a salable yarn and a rejected yarn. We do not claim that all the benefit is due to the pin drafter alone, but as a result of its introduction, a general shake-up in the whole processing picture takes place.

There are four factors at present that circumscribe the fullest benefits of the pin drafter: (1) more accurate control of the combing operation and delivery of a package from the comb capable of economic shipment; (2) lack of instrument control of processing; (3) lack of engineering trained technicians to do necessary experimentation and coordinate processing; (4) inertia of an age-old industry. I do not offer these factors in the form of derogatory criticism but as helpful suggestions. The machinery manufacturer can not carry the load of manufacture and mill operation in addition. Too often, as newcomers in the field, we are met with an attitude of "What can you possibly tell us who have carried on an industry for a hundred years?" The answer to that one is that all engineering problems have a fundamental approach of commonsense analysis. We as a company are vitally interested in bringing improved equipment to the textile field. The pin drafter is the first piece of this type of equipment we have distributed to the industry. It resulted only from a co-operative effort on our part with the industry. It is doing a good job in the extension of pin control to processing.

Mr. Longstreet's discussion was presented to the June 2, 1948, meeting of the American Association of Textile Technologists.

Chain Drives For 249 Cards

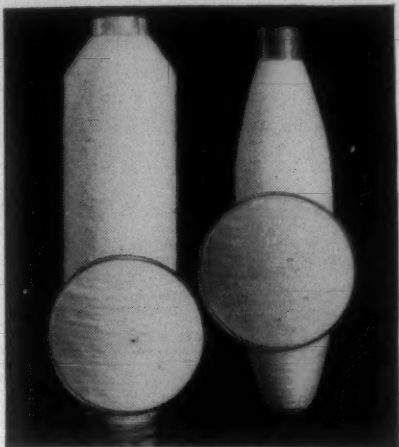
EXPOSITION COTTON MILLS was established at Atlanta, Ga., in 1882 immediately following the Cotton States Exposition, held the previous year as a public spirited movement among a group of foremost citizens to help Atlanta and the surrounding territory utilize the natural resources of the region.

Imbued with civic pride in Atlanta, a group of citizens, representing not only wealth but influence in other spheres, met Jan. 10, 1882, and inaugurated plans to purchase the Exposition building and grounds as a site for a cotton tex-

tile mill. That, in a few words, is the story of how the company came to be organized and given the name Exposition Cotton Mills Company.

We recently visited this mill with Woodrow Phillips, Link-Belt Atlanta engineer, to obtain the accompanying photographs of a few of the 249 Link-Belt Silverstreak silent chain drives on 249 carding machines in the Exposition card room.

Each of these silent chain drives connects a 1,150 r. p. m. (full load speed) electric motor to card drumshaft at 191.6



Impurities and defects in the yarn or thread inevitably follow insufficient cleaning and poor opening. These defects can be reduced to the minimum by using "1948 SACO-LOWELLized" Opening and Picking Processes.

SACO-LOWELL

.. always FIRST in Opening, Cleaning, Picking

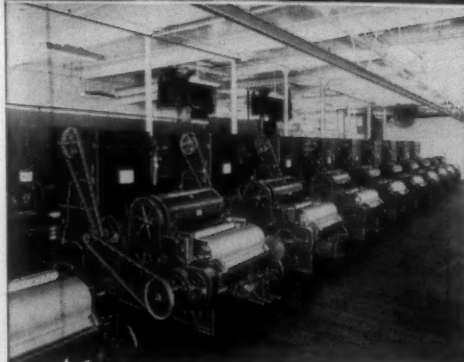
Modern opening and picking is built around six major developments pioneered by SACO-LOWELL:

- 1 Cleaning and Blending Feeders
- 2 Dust and Waste Extractors
- 3 Reserve Box with Control Distribution
- 4 One-Process Picking with Blending Reserve
- 5 Automatic Air Filters for Picker Room
- 6 Synchronized Electric Control for Opening and Picking

All originated by SACO-LOWELL, these notable engineering achievements have saved vast sums through better cleaning, more uniform blending, reduced fibre damage, and regularity in weight and lap structure.

Removal of Impurities such as peppery leaf, dust, seed fragments, motes and neps can best be accomplished in the opening and picking room... especially in a conditioned atmosphere made possible by the use of air recirculated through our automatic filters.

Today, with the ever-increasing use of cotton picked mechanically, the problem of cleaning in the early stages takes on added significance. Mills that have not had the opportunity to SACO-LOWELLize in recent years will find discussion with our engineers interesting and helpful.



(Top) Chutes from blending room to blending feeders
(Center) An impressive line of No. 6 Air Filters
(Bottom) Pickers in a large Southern mill



SACO-LOWELL

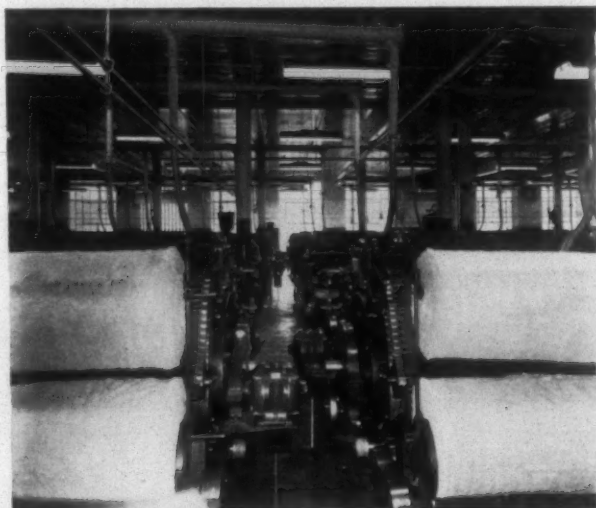
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All 249 cotton cards in this card room are equipped with individual steel-encased Link-Belt Silverstreak silent chain drives mounted horizontally, above floor, as shown in this photo. The G. E. $1\frac{1}{2}$ -h. p. motor is supported on a bracket attached to side frame of machine. All 249 cards are also equipped with L-B Card-Flat chain.



Looking between ends of adjacent carding machines, showing staggered Link-Belt silent chain drives from individual motors. Outer end of motor projects only 19 inches beyond flange of carding drum. Distance between end flange of adjacent drums is 34 inches. Supporting the drive above floor makes it easier and safer to walk between machines, also easier to keep the floor and drive clean.



Looking down an alley in the Exposition card room.

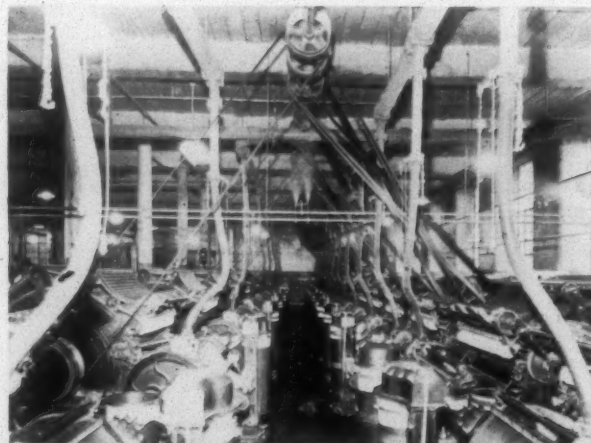
r. p. m., on shaft centers of only $18\frac{1}{4}$ inches. Both Westinghouse straight-shaft and General Electric tapered-shaft motors are used.

The motor is mounted on a specially built steel bracket at such height above the floor as to place the motor shaft in the same horizontal plane as the card drum shaft.

Cards are closely spaced through the card room, with a distance of only 34 inches between end flanges of drums on



General view of three cards at one end of room; showing three encased, individual silent chain drives from $1\frac{1}{2}$ -h. p. electric motors directly to carding drums.



Top view is a corner of card room before the overhead, group, belt drives were replaced by individual Link-Belt Silverstreak silent chain drives. Bottom view shows the great improvement that has been made.



adjacent machines. The complete drive (silent chain casing, motor and supporting bracket) projects only 19 inches beyond drum flange.

By mounting the drives on brackets above the floor, and making them alternately right and left-hand, thus staggering the position of motors, it is much easier and safer to walk between machines for any necessary inspection and maintenance work. In addition, the off-the-floor drive makes for greater cleanliness.

The power-transmitting medium connecting motor pinion with driven wheel is a one-half-inch pitch, 1½-inch wide strand of Link-Belt middle-guide silent chain. Pinion has 20 cut teeth; the driven wheel, 120 teeth.

The chain drive is enclosed in a Link-Belt oil and dust-tight Type "Z" oil-retaining steel casing constructed of heavy-gauge steel and made split to facilitate inspection.

The two halves of casings are made with lap joints. This tight construction, plus single oil-seal washer at motor and double oil-seal washers at drum shaft, locked against rotating with shaft, automatically keeps the lint and dust outside the casing and the oil inside.

Top of casing is provided with a removable filler cap for oil. Bottom half of casing is fitted with an oil gauge and drain plug.

Silent chain casings prolong the high efficiency and life of the chain and wheels by providing adequate lubrication at all times. Moving parts are fully enclosed, which is an important safety precaution.

All of these casings provide for adjustment of shaft centers, and for slight eccentricity at motor shaft. Structural steel clips support the casing firmly on motor bracket at one end and directly on framework of machine at other end.

Stripping, Grinding

Cards are stripped once in 220 hours before they are ground with a motor-driven stripper roll to remove motes and trash not removed by vacuum stripper. The stripper roll is driven with a one-half h. p., 1,200 r. p. m motor, direct-connected to a planetary gear with a ratio of three to one.

Cards are ground by the same method as before, changing from overhead belt drives to individual silent chain drives, with the exception of raising cover on switch and moving a snap switch to reverse card motor.

Exposition's superintendent is James C. Edwards, Jr.; H. L. Golder is assistant superintendent, E. W. Jordan is overseer of the card room and F. L. Netherlands is purchasing agent.

This article was adapted from a feature which appeared originally in the May, 1948, issue of LINK-BELT NEWS, house organ of Link-Belt Co.

To Import Italian Worsted Machinery

An Italian textile machinery manufacturer has named Ernest L. Frankl Associates, a New York City import and export firm dealing in mill equipment, its United States representative and plans allocation of worsted preparatory machinery for the American market, it is reported.

The Italian firm is S. A. Officini Meccanica S. Andrea Novara. It will ship units or complete sections of machinery for production of worsted yarn on the French system, according to Ernest L. Frankl, president of the American firm.

Delivery can be had within three to six-month periods,

he said. Prices in Italy are about to stabilize, Mr. Frankl held, and he stated that he could absorb a ten to 20 per cent import duty on this equipment and still sell it for less than mills could get it elsewhere.

S. Andrea, which has been manufacturing worsted machinery more than 25 years, recently enlarged its capacity, Mr. Frankl said. The firm does not manufacture worsted cards or backwashers, but is arranging for another Italian manufacturer who specializes in that type of equipment to furnish these items when export of complete units is desired.

Handbook Prepared For Mills By Avisco Experts

Rayon Technology, a handbook for textile mills prepared by the textile research department of American Viscose Corp., has just been published by McGraw-Hill Book Co., Inc. "This book has been prepared to meet the needs of mill men, teachers, students and others who want to know the better ways to process rayon into yarn, gray goods, and finished fabrics," says the foreword. "It must be considered an advanced book, designed to help those who already have a knowledge of conventional spinning processes. It covers all phases of textile manufacture, including spinning rayon staple by the three principal systems, and throwing, weaving, knitting, dyeing and finishing.

"Since the various divisions of the textile industry must be recognized as being somewhat independent of each other, each section can be read separately without difficulty. Yet there is a continuity for anyone interested in the industry as a whole. Rayon is cutting across all divisions of the textile industry and is its greatest unifying force."

It is emphasized that the book was written by experts in each of the various divisions of the textile industry covered. "No one person—nor two, three, nor four—could write this book," it is pointed out. "The many divisions of the industry and various technologies used are beyond the scope of any one person to explore, experiment with, and understand. The production of this book required the combined technical skills and experiences of all the textile research department of American Viscose Corp."

The contributions of the various experts were assembled and edited by J. A. Truitt, Caroline Boyer, and Thomas L. Rusk, Jr., of the educational branch. The material originally was prepared as a textbook for an Advanced Seminar on Rayon held in June, 1946, at Marcus Hook, Pa. Later the material was reviewed and rewritten where necessary.

Yarn Testing Changes Being Discussed

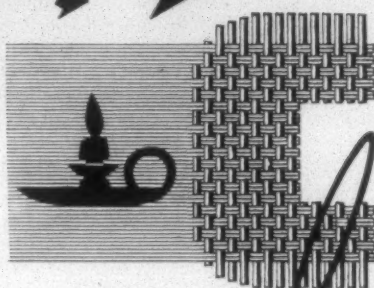
A task force of the American Society for Testing Materials met recently at the Institute of Textile Technology, Charlottesville, Va., for the purpose of revising methods of testing and tolerances for cotton yarns.

A group of textile experts, headed by H. A. Mereness, head of the textile testing division of the institute, pooled the results of months of preparatory work that should result in better fabrics for the consumer. Upon approval and adoption by the society the methods established will be the standards for the entire textile industry.

In addition to Mr. Mereness the group is composed of W. B. Lane, West Point Mfg. Co., Shawmut, Ala.; H. L. Pratt, Columbia (S. C.) Mills; W. P. Coefield, Jr., Callaway Mills Co., LaGrange, Ga.; and W. R. Marsden, Bibb Mfg. Co., Columbus, Ga.

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Since the introduction of Chatham Slasher Cloth in December, Chatham's research laboratories have developed new constructions and new combinations of specially processed materials. Tests made under actual working conditions in one of America's largest cotton textile mills show these phenomenal results:

	ON	OFF	YARDAGE RUN
Test No. 1	May 11th	June 16th	692,160
Test No. 2	May 12th	June 25th	938,400
Test No. 3	May 17th	June 25th	816,000
			2,446,520
		Average	815,520

- ➡ *and NO shrinkage*
- ➡ *NO increase in price*
- ➡ *and unexcelled sizing of yarn*

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Elkin, North Carolina

Warp Preparation & Weaving

Research Analyzes The Textile Drying Market

By RALPH W. FEIL, Mechanical Engineering Division, Institute of Textile Technology, Charlottesville, Va.

THE over-all research objectives of the Institute of Textile Technology are to reduce the cost of manufacture, to improve the quality of the finished textile products, and to develop new and useful products through scientific and technological advancement. In applying these objectives to the purpose of the drying project, the first phase of which is now complete, it was our aim to study the possibilities of reducing the cost of drying and of improving the quality of the material so processed, either by improvements of an old, conventional method, or by the substitution of a new technique.

In the beginning of this program, it was decided that the most logical approach to the problem of textile drying would be: (1) to establish the actual costs of the various drying processes as now performed in the mills, and to determine, where possible, the technical factors which limit the rate of production and quality of processed material; (2) to compare the performance of these conventional driers with the expected performance of driers utilizing electric infrared and high frequency dielectric techniques; and (3) to determine the magnitude of the various drying operations in the textile industry.

Establishing Actual Costs

Our first effort to obtain cost and technical information on current textile practices in drying was in the form of a questionnaire, which was submitted to our member mills. The results of this technical questionnaire were disappointing. We found that very few mills were able to supply the type of data which was needed. At this point it became apparent that, in order to obtain this information, institute engineers would have to go into the mills and analyze representative drying operations. Engineering data have now been obtained on some of those processes which are most widespread in the industry. Our experimental work included tests on four steam-cylinder slashers; one electric infrared slasher; two raw stock driers; one cloth drier; one tenter drier; and one warp beam drier.

In Table I are tabulated the performance characteristics of the driers which process thin-sheet material. Notice the re-

lationship between labor cost and average operating speed. The higher the speed, the less the total cost. The average mill processes about 3,500,000 pounds of yarn in the sizing process each year. On the basis of 65 per cent water removal in the drying section, this means that the cost of this single operation, not counting overhead and equipment amortization and depreciation, and using the total cost figure for the two-cylinder slasher, is about \$15,000 per year.

Comparing Performance

As mentioned before, the second step in the drying survey was to compare the performance of the conventional driers to the expected performance of driers utilizing electric infrared and high frequency dielectric techniques. In considering infrared and high frequency drying of textile materials, we have limited infrared to thin-sheet applications and high frequency to package applications. It has been established that infrared radiation will not penetrate a thick package efficiently; on the other hand, the efficiency of coupling high frequency energy into thin-sheet materials is rather low, according to most of the experts in that field. High frequency comes to the fore when penetration is necessary.

We have tested one experimental production installation of an electric infrared tunnel drier used in the slashing operation. The efficiency of this unit was only 23 per cent; i. e., the energy absorbed by the evaporating water was only 23 per cent of the energy supplied to the lamps. This low efficiency was caused mainly by the fact that the moist air removal system was inadequate. The cabinet was not insulated. Also, the radiation area was not being fully utilized, since the width of the yarn web was considerably less than the width of the cabinet.

Manufacturers of infrared equipment claim that an overall efficiency of 60 per cent is practical for this type of drier. There is no reason to believe that this limit will not be extended through future development.

In Table II an infrared unit, with an efficiency of 60 per cent, is compared with a steam-can slasher, a tenter drier, and a stock drier. These cost figures, which are based on a unit steam cost of \$0.75 per 1,000 pounds and a unit power

TABLE I
DRIER PERFORMANCE (THIN-SHEET TYPE)
Operating Cost
(c./lb. H₂O Removed)

Drier	Steam and Electric	Labor	Total	Speed (yd./min.)	Heat Transfer Efficiency (%)
Slasher (7-cyl.)	0.22	2.10	2.32	10	47.5
Slasher (3-cyl.)	0.20	0.49	0.69	17	48.5
Slasher (2-cyl.)	0.17	0.50	0.61	21	61.5
Slasher (4-cyl.)	0.16	0.32	0.48	30	75.4
Tenter	0.26	0.10	0.36	56	45.9
Cloth	0.14	0.08	0.32	97	65.8

TABLE II
HEAT TRANSFER EFFICIENCIES
DRIING COSTS AND PERFORMANCE CHARACTERISTICS OF DRIERS

Drier	Drying Cost, Cents Per Lb. of Water Removed	Heat Transfer Efficiency (%)
Infrared slasher	0.38	60.0
Steam-can slasher	0.14	61.5
Tenter drier, hot-air	0.21	45.9
Stock drier, hot-air	0.24	35.0

cost of eight mills per kilowatt hour, include only the expense of supplying heat to the driers.

On this basis, the cost of drying by means of electric infrared appears to be about $2\frac{1}{2}$ times as much as drying by steam-heated cylinders in the slashing operation. For the tenter drier, the ratio is less than 2, and for the stock drier the cost ratio is $1\frac{1}{2}$. Obviously, the standardized conditions assumed above will not exist throughout the textile industry, and the cost ratios will vary according to the locality.

A well-designed and efficient infrared drier should have many inherent advantages over most of the conventional types of driers for thin-sheet materials. Instantaneous heat control is one very desirable feature. The thermal lag of a drier using electric infrared lamps is small and, on starting, the heat for moisture removal is available immediately after the drier is energized. In stopping, this same feature can be utilized in preventing injury to the material. The time delay in waiting for long steam lines and steam cylinders or heaters to reach operating temperatures is effectively eliminated.

The heat transfer efficiency of the drier would not necessarily be lowered when materials of different widths are processed. Rows of lamps along the length of the unit could be energized to conform with the width of the material. Any desired variation in energy requirements occasioned by different weights of material, moisture take-ups, speeds of operation, etc., could be obtained by varying the voltage applied or number of lamps energized.

Another point of prime importance is the result of adding the power load represented by an infrared drier to the mill's present demand. For instance, we estimate that an average infrared slasher would require about 150 k. w. of electrical energy, with a power factor of almost 1. If such units could be operated, for the most part, during off-peak periods so that the present maximum k. w. demand would not be exceeded, it is possible that an appreciable saving would result on the entire mill load.

It is highly probable that an efficient infrared drier would allow substantial increases in operating speeds. For instance, the problem of separating warp ends before and during drying in the sizing process would be simplified. If the separating bars as now employed could be eliminated, one speed-limiting factor would be overcome. Also, from a mechanical standpoint, higher speed would be easier to attain on a unit that does not incorporate large rotating masses. Despite the fact that we have no experimental evidence to show that yarn processed through an infrared drier would exhibit quality improvement over the steam can method, we strongly feel that quality improvement is to be expected by the elimination of yarn contact with hot metal surfaces.

Since high-frequency dielectric heating can be more efficiently applied to package drying, data acquired from manufacturers of high frequency equipment have been compared with data acquired on the operation of drying warp beams by the forced hot-air method. Considering a case in which 20 beams are dried simultaneously, 290 pounds of yarn on each beam, 325 pounds of water removed from each beam, and a drying time of 24 hours, the following hourly costs have been calculated for the hot-air method:

(1) Equipment	\$1.30
(2) Electrical power	1.12
(3) Steam	0.21
(4) Labor	0.11
(5) Maintenance	0.45

\$3.19 per hr.

According to one manufacturer of industrial high frequency equipment, it would require at least a 100 k. w. output unit, at a cost of about \$85,000 to remove the same quantity of water (270 pounds per hour) as above. This would represent a time reduction ratio of 20 to 1. On this basis, the hourly costs for drying the beams by high frequency are calculated as follows:

(1) Equipment	\$3.54
(2) Electrical power	1.87
(3) Tube replacement	0.75
(4) Labor	0.22
(5) Maintenance	0.17

\$6.46 per hr.

Thus, from this comparison, which in every respect shows high frequency at its best advantage, it appears that the cost would be at least twice as great for the high frequency method. In view of the relative higher cost of high frequency dielectric drying, the possibilities in this field will depend on such factors as improvements in quality of processed materials and the development of new materials and methods of manufacture. The success of high frequency in textile drying will probably be limited to packages and special applications, since the textile industry is tending toward continuous processing. Yarn now dried in package form will probably be dried in filament form in a continuous process.

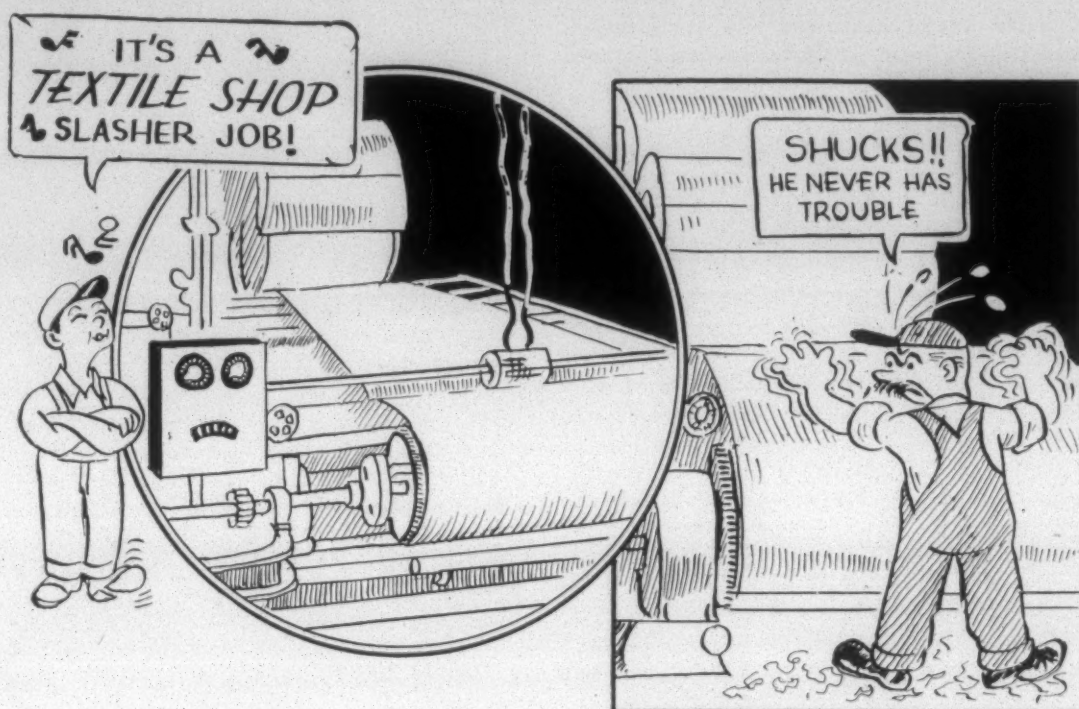
From information available on one such continuous process, in which warp yarn is dyed, dried, sized, and dried, the cost is estimated to be about \$0.029 per pound of yarn processed. This cost is approximately the same as drying alone by the high frequency technique, and twice as great as drying alone by the forced hot-air method.

Scope of Drying Operations

In order to get some idea as to the magnitude of the various textile drying operations, a questionnaire was prepared. The information requested was obtained by utility company engineers who made personal visits to the mills specifically for completing the questionnaires.

This questionnaire was designed primarily to obtain statistical data as to the magnitude of the various drying operations in the textile industry, with special emphasis on slasher drying. At the outset, it was hoped that sufficient reliable data would be forthcoming for the realization of the following objectives: (1) to determine the relative magnitude of the *slasher drying operation* as compared with other major types of drying processes; (2) to obtain sufficient information for an estimation of the potential *electric market* and *equipment market* that could result from the successful development of electric slasher driers; and (3) to supplement our experimental cost data on slasher drying.

Of the 290 completed questionnaires that were returned, 284 were from mills in the states of Georgia, Alabama,



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ALSO

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THE TEXTILE SHOPS

DESIGNERS — ENGINEERS — MANUFACTURERS

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WARP PREPARATION & WEAVING

North Carolina, South Carolina and Virginia. Therefore, the tabulated results have been limited to these five states.

TABLE III
NUMBER OF SPINDLES COVERED BY QUESTIONNAIRE—
MATERIAL PROCESSED

State	Spindles		Raw Material			
	Total No.	Cotton	Rayon	Wool	Nylon	Blends
Georgia	1,633,228	1,481,868	—	9,040	5,000	137,320
Alabama	1,587,302	1,374,534	—	—	—	212,768
North Carolina	1,480,192	1,224,868	145,288	16,112	11,000	82,924
South Carolina	539,666	521,142	5,460	—	7,992	5,072
Virginia	250,142	180,028	68,074	2,040	—	—
TOTAL	5,490,530	4,782,440	218,822	27,192	23,992	438,084
PERCENTAGE	(100%)	(87%)	(4%)	(½%)	(½%)	(8%)

The number of spindles covered by the questionnaire are tabulated in Table III, according to state and also according to raw material processed. The total number of spindles covered was 5½ million, which is slightly more than 32 per cent of all the spindles in operation in these states. Cotton was being processed on 87 per cent of the spindles, rayon on four per cent, wool on 0.5 per cent, and blends were being processed on the remaining eight per cent of the spindles.

TABLE IV
NUMBER OF DRIERS COVERED BY QUESTIONNAIRE
Number According to State

Type of Drier	Georgia	Alabama	North Carolina	South Carolina	Virginia	Total
Slasher	165	142	124	45	38	514
Stock	20	2	10	2	1	44
Tenter	14	2	22	3	16	57
Package	10	8	24	12	2	56
Cloth	23	6	25	2	12	68
(Others)	15	6	16	3	8	48

The number of driers that were in use in the 284 mills are listed in Table IV. The last classification includes such driers as carbonizers, loop driers, net driers, and hurricane driers. It is interesting to note that there are about 7½ times as many slashers as there are cloth driers, the next largest group. Slashers outnumber the total of all other driers about 2 to 1.

TABLE V
RATIO OF LOOMS TO SLASHERS
Number According to State

	Georgia	Alabama	North Carolina	South Carolina	Virginia	Total
Slashers	165	142	124	45	38	514
Looms	35,030	31,527	23,809	11,301	8,615	110,282
Ratio						
looms/slasher	212/1	222/1	192/1	251/1	226/1	215/1

The ratio of looms to slashers was determined for the purpose of estimating the total number of slashers that are in operation in the five states and in the United States. This approach was chosen because practically all the fabric that is woven is made from a warp that has been sized in the slashing process. Shown in Table V are the number of slashers and the number of looms as recorded from the questionnaires. The average ratio of looms per slasher is 215 to 1.

In Table VI are shown the estimated slasher equipment market, the slasher potential electric market, and the steps that were used in determining these figures. First, the total number of slashers in use was determined by applying the

ratio of 215 to 1 to the number of looms. Thus, a number of looms shown in this table is about three times the number shown in the questionnaires, since the coverage was about one-third. In this manner, it is estimated that there are 1,465 slashers in operation in the states of Georgia, Alabama, North Carolina, South Carolina and Virginia, and that there are 2,310 slashers in use in the United States. These figures are the estimated equipment market. It is pointed out that roughly 65 per cent of all the looms in operation in this country are located in the five states considered in this discussion.

According to the data received, each slasher processes approximately 1,210,000 pounds of material annually. This unit production rate was used in calculating the annual production as shown in the third line of Table VI. In the next line is shown the quantity of water removed by the drying section of the slashers. The 65 per cent removal is taken from the results of our experimental work done on a limited number of slasher units.

The next line in Table VI shows the number of kilowatt hours which would be required to remove the water if electrical energy were utilized with a 60 per cent conversion efficiency. This efficiency, which is considered reasonable, was obtained from manufacturers of electric drying equipment. In the five states, a total of 591,000,000 k. w. h. of electrical energy would be required if all the slasher driers were electrified. In the United States, this figure would be 933,000,000 k. w. h.

TABLE VII

ANNUAL POTENTIAL ELECTRIC MARKET FOR SLASHER DRYING	
Georgia	\$ 945,000
Alabama	558,000
North Carolina	1,280,000
South Carolina	2,255,000
Virginia	288,000
Total	\$5,326,000
(United States)	8,400,000

In the last line of Table VI, and in Table VII, is shown the dollar value of this electric market, based on a customer rate of nine mills per k. w. h., which was the average rate from the 284 questionnaires. The total electric market for the five states is estimated to be \$5,500,000, and the estimated total for the whole United States is \$8,500,000.

Conclusions

This survey has been confined to those types of drying which appear to be general throughout the industry. We have not been able, as yet, to study specialized needs or applications to new products, new finishes, and new uses. Several conclusions have been reached as a result of these investigations:

(1) Continuous drying of thin materials should be stressed at the expense of package drying, since the future development of textile processing, in all probability, will tend more and more toward a continuous process from raw material to finished product with a minimum of packaging. About 90 per cent of the driers in the textile field today are

TABLE VI
ANNUAL POTENTIAL ELECTRIC MARKET FOR SLASHER DRYING

	Georgia	Alabama	North Carolina	South Carolina	Virginia	Total	United States
Looms	55,845	33,276	75,679	133,023	16,903	314,726	496,147
Slashers (215/1)	260	155	352	619	79	1,465	2,310
Annual production lbs. material x 10 ⁶	315	188	427	752	96	1,778	2,808
Lbs. H ₂ O removed at 65% x 10 ⁶	205	122	277	488	62	1,155	1,825
K.w.h. at 60% eff. x 10 ⁶	105	62	142	250	32	591	933
Estimated potential market	\$945,000	558,000	1,280,000	2,255,000	288,000	5,326,000	8,400,000

of the continuous type, as applied to thin materials. It would seem, therefore, that the most versatile type of drier for textile materials is the tunnel type of oven through which yarn, cloth, or raw stock could flow.

(2) Whatever the source of heat energy employed, continuous drying as currently practiced in the textile industry can, in many cases, be improved by a redesign of the moist-air removal system.

(3) Steam can driers were the most efficient and economical type of continuous drier which we have investigated experimentally.

(4) An attempt should be made to incorporate drying with other textile operations. This is illustrated by the successful commercial process which dyes, dries, and sizes warp yarn in a single continuous operation.

(5) High frequency dielectric drying is applicable to packages where penetration is essential. In its present state of development it is not able to compete economically with other methods for the continuous drying of thin textile materials.

(6) The electric infrared method is applicable to the continuous drying of thin textile materials and it should be seriously considered as a competitor of steam in this field. Every effort should be made to develop an efficient infrared drier whose use would be completely justified when such factors as increased operating speed, lower equipment cost, operation flexibility, ease of control, cleanliness, and improved product quality are considered.

Mr. Fell made his remarks before the Power Sales Conference of the South-eastern Electric Exchange at New Orleans, La., in May.

French Circular Loom Is Demonstrated

A NUMBER of textile executives and machinery manufacturers were interested observers recently in Long Island City, N. Y., when the new Fayolle-Ancet circular loom was demonstrated for the first time in this country by Hafner Associates, Inc. It is claimed that the new French loom weaves an estimated three to five times as fast as present models.

The loom weaves 123½ inches wide at a speed called comparable to 240 picks per minute for full-width cloth or about 500 to 700 picks for a 40-inch cloth. It operates with eight shuttles circulating simultaneously and, it is reported, can weave all regular counts of cotton, wool, rayon and linen.

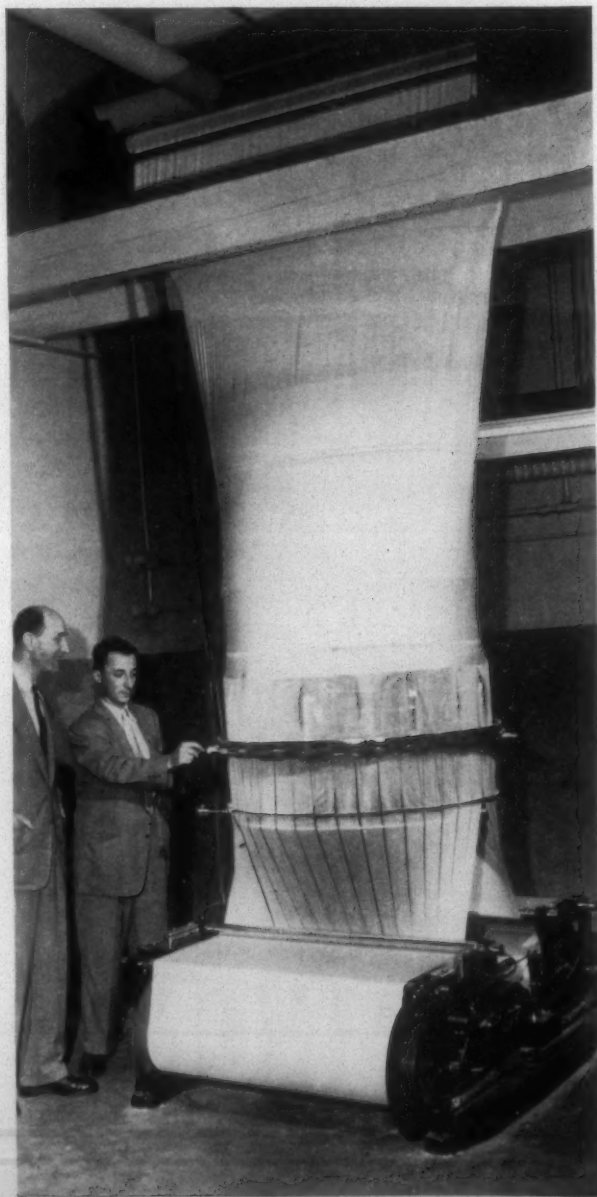
Four shafts, operating with eight shuttles, make it possible to weave with a repeat of four ends and eight picks without reducing the loom speed, it is claimed. Warp yarn is fed to the machine from two loom beams and is then passed through a reed to a harness shaft. It is then led to the beam where it is woven by a new type of shuttle which contains a standard, parallel-wound bobbin. The shuttle, which is electromagnetically operated, circulates through the warp shed. The filling is pushed into place by a "rowel." Equipped with three stop-motions, the machine stops immediately in the event of yarn breaks.

With its eight filling beams or carriers working simultaneously it is possible to produce a greater variety of patterns without any reduction of speed, it is claimed.

The loom was designed by Marius Fayolle of Villeurbane, France, and was demonstrated at the Hafner plant in Long Island City. It is understood that the Fayolle-Ancet firm may be able to produce a small number of the looms for export, but it is reported that they are looking for an American manufacturer and backer.

Based on estimates made by American engineers, the expected selling price for the loom probably will range from \$2,000 to \$2,500.

Opinions of those who have viewed the machine appear to be divided as to its advantages and disadvantages. Principal disadvantages pointed out are its limitation in the width of cloth, restriction to pattern ranges up to seven, a lack of the standard selvage, and a height of 12 feet, six inches, which exceeds the ceiling limit of many modern textile plants.



Warp yarns are fed to the Fayolle-Ancet circular loom from two beams. Height of the French loom is 12 feet, six inches.

In Twister Rooms it's **NON-FLUID OIL ...**



for fewer broken ends!

Most leading yarn and thread mills find that NON-FLUID OIL insures greater production from twister frames by keeping them in constant operation.

By reducing traveler friction, NON-FLUID OIL cuts down the number of broken ends, eliminates overstrain on yarn and does away with much blackened yarn. Result—more even operation with cleaner yarn of better quality at lower production cost.

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Maintenance & Engineering

The Electrical Code And Textile Mill Wiring

Part Ten of a Series by JAMES T. MEADOR

WITH this installment we begin our discussion of the parts of the National Electric Code which will be of direct interest to master mechanics and electricians. This part refers to the proper installation of wiring for motors and controllers in most of the various jobs that you are concerned with.

Motors and Controllers

Section 4301, General—It is intended that the following general provisions shall cover all provisions for motors and controllers which do not properly fall into the other divisions of this article.

Section 4302, Application of Other Articles—Motors and controllers shall also comply with the provisions of the following:

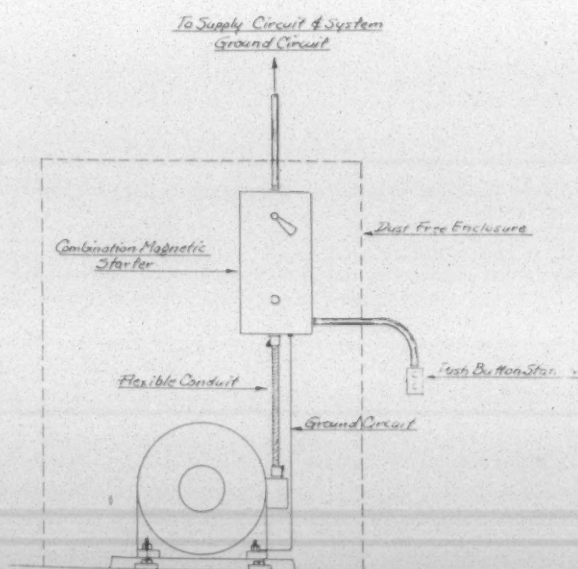
Auto-transformers	Section 2003
Capacitors	Section 4608
Cranes and hoists	Article 610
Elevators	Article 620
Garages	Section 5103
Hazardous location	Article 500
Machine tools	Article 670
Resistors and reactors	Article 470

Section 4303, Overheating from Dust Accumulations—In locations where dust or flying material will collect on or in motors in such quantities as to seriously interfere with the ventilation or cooling of motors, and thereby cause dangerous temperatures, suitable types of enclosed motors which will not overheat under the prevailing conditions,

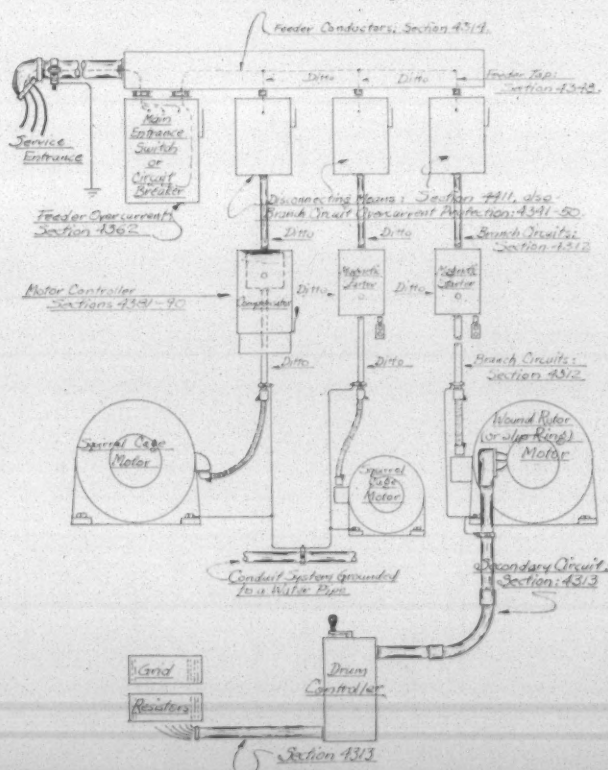
shall be used. Especially severe conditions may require the use of enclosed pipe ventilated motors, or enclosure in separate dust-tight rooms, properly ventilated from a source of clean air.

Section 4304, Identification of Motors—A motor shall be provided with a name-plate which shall give the maker's name, the rating in volts and amperes, including those of the secondary if a wound-rotor type of motor, the normal full-load speed and the interval during which it can operate at full load starting cold, before reaching its rated temperature. The time interval shall be five, 15, 30 or 60 minutes, or continuous. For a motor rated at one-eighth horsepower or larger the horsepower rating shall be marked, except that the motors of arc welders may be marked in amperes. A motor provided with a protective device integral with the motor (see Section 4322) shall have a marking which will so indicate. For an alternating current motor rated at one-half horsepower or larger, except a polyphase wound-rotor motor, the name-plate shall be marked with a code letter to show its input in kilovolt-amperes with locked rotor, selected from the table given in Section 94304, Chapter 9.

The code letter indicating motor input with locked rotor



Sketch No. 1



Sketch No. 2

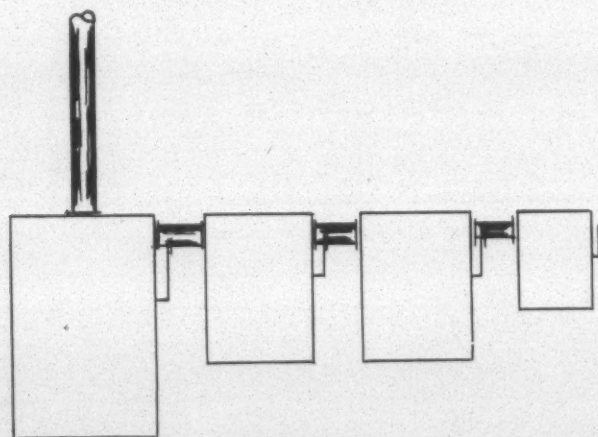
must be in an individual block on the name-plate, properly identified. This code letter is to be used for determining branch-circuit over-current protection by reference to Table 26, Chapter 10, as provided in Section 4342.

Section 4305, Identification of Controllers—A controller shall be marked with the maker's name or identification symbol, the voltage, the current or horsepower rating, and such other data as may be needed to properly indicate the motors for which it is suitable. Where controller is built in as an integral part of a motor or of a motor-generator set, the controller need not be individually marked since the necessary data must be on the motor nameplate.

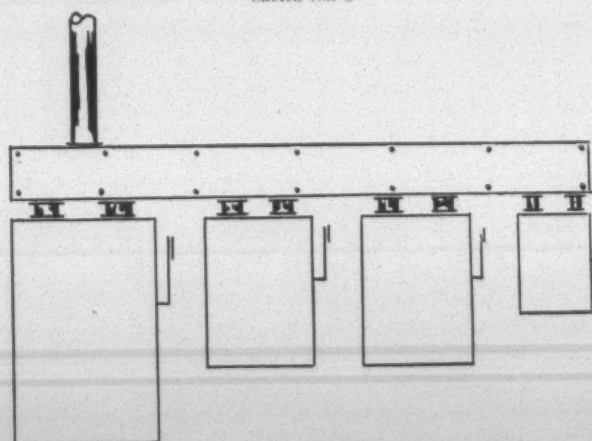
Section 4306, Identification of Terminals—Terminals of motors and controllers shall be suitably identified, as by marking or color, where necessary to indicate the proper connections.

Section 4307, Wiring Space in Enclosures—Enclosures for controllers and disconnecting means for motors shall not be used as junction boxes, troughs, or raceways for conductors feeding through or tapping off to other apparatus unless designs are employed which provide adequate space for this purpose. This is the same situation that we were warned about in Section 3737, in the January issue of TEXTILE BULLETIN, along with the accompanying sketches showing both the wrong way and the right way of doing such a job. It is very much to your advantage to take heed to these facts, and abide by them accordingly. We are running these sketches again, herewith—Nos. 3 and 4.

Section 4308, Enclosures—Suitable guards or enclosures



Sketch No. 3



Sketch No. 4

shall be provided to protect exposed current-carrying parts of motors and the insulation of motor leads where installed directly under equipment, or in other locations where dripping or spraying oil, water or other injurious liquid may occur, unless the motor is designed for the existing conditions.

Section 4309, Current-Carrying Capacities—Whenever the current rating of a motor is used to determine the current carrying capacity of conductors, switches, branch-circuit overcurrent devices, etc., the values given in Tables 21 to 24 of Chapter 10, including footnotes, shall be used in lieu of actual current rating marked on the motor nameplate. Motor running overcurrent protection shall be based on the motor nameplate current rating. If a motor is marked in amperes, but not horsepower, the horsepower rating shall be assumed to be that corresponding to the value given in Tables 21 to 24, prorated if necessary. These tables, Nos. 21, 22 and 24, are herewith given in order to co-ordinate all of the factors of this Article 430.

TABLE 21—FULL-LOAD CURRENT*
Direct-Current Motors

H.P.	115 V.	230 V.	550 V.
1/2	4.6	2.3	—
3/4	6.6	3.3	1.4
1	8.6	4.3	1.8
1 1/2	12.6	6.3	2.6
2	16.4	8.2	3.4
3	24.	12.	5.0
5	40.	20.	8.3
7 1/2	58.	29.	12.0
10	76.	38.	16.0
15	112.	56.	23.0
20	148.	74.	31.
25	184.	92.	38.
30	220.	110.	46.
40	292.	146.	61.
50	360.	180.	75.
60	430.	215.	90.
75	536.	268.	111.
100	—	355.	148.
125	—	443.	184.
150	—	534.	220.
200	—	712.	295.

*These values for full-load current are average for all speeds.

TABLE 22—FULL-LOAD CURRENT*
Single-Phase A. C. Motors

H.P.	115 V.	200 V.	208 V.	230 V.	440 V.
1/6	3.2	1.9	1.8	1.6	—
1/4	4.6	2.6	2.5	2.3	—
1/2	7.4	4.3	4.1	3.7	—
3/4	10.2	5.9	5.6	5.1	—
1	13.	7.5	7.2	6.5	—
1 1/2	18.4	10.6	10.1	9.2	—
2	24.	13.8	13.2	12.	—
3	34.	19.6	18.8	17.	—
5	56.	32.2	31.0	28.	—
7 1/2	80.	46.0	44.0	40.	21.
10	100.	57.5	55.0	50.	26.

*These values of full-load current are for motors running at speeds usual for belted motors and motors with normal torque characteristics. Motors built for especially low speeds or high torques may require more running current, in which case the nameplate current rating should be used.

TABLE 24—FULL-LOAD CURRENT*
Three-Phase A. C. Motors

H.P.	Induction Type Squirrel-Cage and Wound Rotor Amperes					Synchronous Type **Unity Power Factor Amperes			
	110 V.	220 V.	440 V.	550 V.	2300 V.	220 V.	440 V.	550 V.	2300 V.
1/2	4	2	1	.8	—	—	—	—	—
3/4	5.6	2.8	1.4	1.1	—	—	—	—	—
1	7	3.5	1.8	1.4	—	—	—	—	—
1 1/2	10	5	2.5	2.0	—	—	—	—	—
2	13	6.5	3.3	2.6	—	—	—	—	—
3	—	9.0	4.5	4	—	—	—	—	—
5	—	15	7.5	6	—	—	—	—	—
7 1/2	—	22	11	9	—	—	—	—	—
10	—	27	14	11	—	—	—	—	—
15	—	40	20	16	—	—	—	—	—
20	—	52	26	21	—	—	—	—	—
25	—	64	32	26	7	54	27	22	5.4
30	—	78	39	31	8.5	65	33	26	6.5
40	—	104	52	41	10.5	86	43	35	8

H.P.	110 V.	220 V.	440 V.	550 V.	2300 V.	220 V.	440 V.	550 V.	2300 V.
50	125	63	50	13	108	54	44	10	
60	150	75	60	16	128	64	51	12	
75	185	93	74	19	161	81	65	15	
100	246	123	98	25	211	106	85	20	
125	310	155	124	31	264	132	106	25	
150	360	180	144	37		158	127	30	
200	480	240	192	48		210	168	40	

For full-load currents of 208 and 200-volt motors, increase the corresponding 220-volt motor full-load current by six and ten per cent, respectively.

*These values of full-load current are for motors running at speeds usual for belted motors and motors with normal torque characteristics. Motors built for especially low speeds or high torques may require more running current, in which case the nameplate current rating should be used.

**For 90 and 80 per cent P. F. the above figures should be multiplied by 1.1 and 1.25, respectively.

ALLOWABLE CURRENT-CARRYING CAPACITIES OF CONDUCTORS IN AMPERES

Not more than three Conductors in Raceway or Cable
(Based on Room Temperature of 30° C. or 86° F.)

Size AWG MCM	Rubber Type R Thermo- plastic Type T (14-4/0) Type TW (14-4/0)	Rubber Type RH	Var-Cam Type V
14	15	15	25
12	20	20	30
10	30	30	40
8	40	45	50
6	55	65	70
4	70	85	90
3	80	100	105
2	95	115	120
1	110	130	140
0	125	150	155
00	145	175	185
000	165	200	210
0000	195	230	235
250	215	255	270
300	240	285	300
350	260	310	325
400	280	335	360
500	320	380	405
600	355	420	455
700	385	460	490
750	400	475	500
800	410	490	515
900	435	520	555
1,000	455	545	585
1,250	495	590	645
1,500	520	625	700
1,750	545	650	735
2,000	560	665	775

CORRECTION FACTOR FOR ROOM TEMPERATURES OVER 30° OR 86° F.

C.	F.			
40	104	.82	.88	.90
45	113	.71	.82	.85
50	122	.58	.75	.80
55	131	.41	.67	.74
60	140		.58	.67
70	158		.35	.52
75	167			.43
80	176			.30

Section 4310, Location of Motors—Motors shall be located so that maintenance such as lubrication of bearings and replacing of brushes can be readily accomplished. Open motors having commutators or collector rings shall be located or protected so that sparks cannot reach adjacent combustible material. This does not prohibit the installation of these motors on wooden floors or supports.

Size of Conductors for Motor Circuits

Section 4311, General—It is the intent of the following provisions to specify sizes of conductors capable of carrying the motor current without overheating under the conditions specified.

Section 4312, Individual Motor—Branch-circuit conductors supplying an individual motor shall have a carrying capacity not less than 125 per cent of the motor full-load current rating; provided that conductors for motors used for

short-time, intermittent, periodic, or varying duty may have a carrying capacity not less than the percentage of the motor nameplate current rating as shown in the following table, unless the authority enforcing the code grants special permissions for conductors of smaller size.

Classification of Service	Percentages of Name-Plate Current Rating			
	Five-Minute Rating	15-Minute Rating	30 and 60-Minute Rating	Continuous Rating
Short-Time Duty				
Operating valves, raising or lowering rolls, etc.	110	120	150	—
Intermittent Duty				
Freight and passenger elevators, tool heads, pumps, drawbridges, turntables, single-operator arc welders for manual welding, etc.	85	85	90*	140
Periodic Duty				
Rolls, ore and coal-handling machines, etc.	85	90	95	140
Varying duty	110	120	150	200

or lower at the discretion of the authorities enforcing the regulations.

The conductors between stationary motors, rated one horsepower or less, and the separate terminal enclosures permitted in paragraph 4439-b may be smaller than No. 14 but not smaller than No. 18, provided they have current-carrying capacity as specified above.

This figure also applies for conductors which supply a motor-generator single-operator arc welder which has a 60 per cent duty cycle rating.

Any motor is considered to be for continuous duty unless the nature of the apparatus which it drives is such that the motor will not operate continuously with load under any condition of use.

The size of conductor calculated on the basis of 125 per cent of the motor full-load current for the more usual motor ratings is shown in Table 20, Chapter 10, of the Code Book, which you should have.

Section 4313, Wound-Rotor Secondary—The conductors connecting the secondary of a wound-rotor A. C. motor to its controller shall have a carrying capacity which is not less than 125 per cent of the full-load secondary current of the motor if for continuous duty. For other than continuous duty, these conductors shall have a carrying capacity, in per cent of full load secondary current, not less than that specified in the table in Section 4312. Where the secondary resistor is separate from the controller, the carrying capacity of the conductors between controller and resistor shall be not less than that given in the following table:

Carrying Capacity of Wire in Per Cent of Full-Load Secondary Current	
Resistor Duty Classification	
Light starting duty	35
Heavy starting duty	45
Extra heavy starting duty	55
Light intermittent duty	65
Medium intermittent duty	75
Heavy intermittent duty	85
Continuous duty	110

Section 4314, Conductors Supplying Several Motors—Conductors supplying two or more motors shall have a current-carrying capacity of not less than 125 per cent of the full-load current rating of the highest rated motor in the group plus the sum of the full-load current ratings of the remainder of the motors in the group. (See Example No. 6, Chapter 10.)

Section 4315, Combination Load—Conductors supplying a motor load, and in addition a lighting or appliance load as computed from Article 220 and other applicable sections, shall have a current-carrying capacity sufficient for the lighting or appliance load plus the required capacity for the

motor load determined in accordance with Section 4314, or, for a single motor, in accordance with Section 4312.

Section 4316, Demand-Factor—Where a reduced heating of the conductors results from motors operating on duty-cycle, intermittently, or from all motors not operating at one time, the authority enforcing this code may grant permission for feeder conductors to be of a capacity less than specified in the Sections 4314 and 4315, provided the conductor is of sufficient carrying capacity for the maximum load determined by the sizes and number of motors supplied and the character of their loads and duties.

Now, with all this behind us, we are ready to try our hand with a few examples, although we have not yet completed enough of this part of the code to enable us to lay out a complete job. However, these examples will lay the groundwork for what else is to follow later concerning fuse ratings, switch ratings, etc., motor control. Here we go: determine the size of wire or cable for these motors. (Reference Table 24, herewith), (Sketch No. 5):

5 H.P.	550 Volts, 3-Phase, A.C.	6 Amps x 125% =	7.50 Wire Amperes
7½ H.P.	"	9 " x 125% =	11.25 " "
10 H.P.	"	11 " x 125% =	13.75 " "
15 H.P.	"	16 " x 125% =	20.00 " "
25 H.P.	"	28 " x 125% =	32.50 " "
40 H.P.	"	41 " x 125% =	51.25 " "
50 H.P.	"	50 " x 125% =	62.50 " "
75 H.P.	"	74 " x 125% =	92.50 " "
100 H.P.	"	98 " x 125% =	122.50 " "

Which brings us up to the point of what size of wire or cable is most advisable to use for such circuits. So, another question comes up for a decision, and that is, which shall we use, Rubber insulated Type R, RW or RH, or Thermoplastic Type T or TW, or shall we use Varnished Cambric insulated Type VC?

The answer is pretty easy, once we get the right start, and

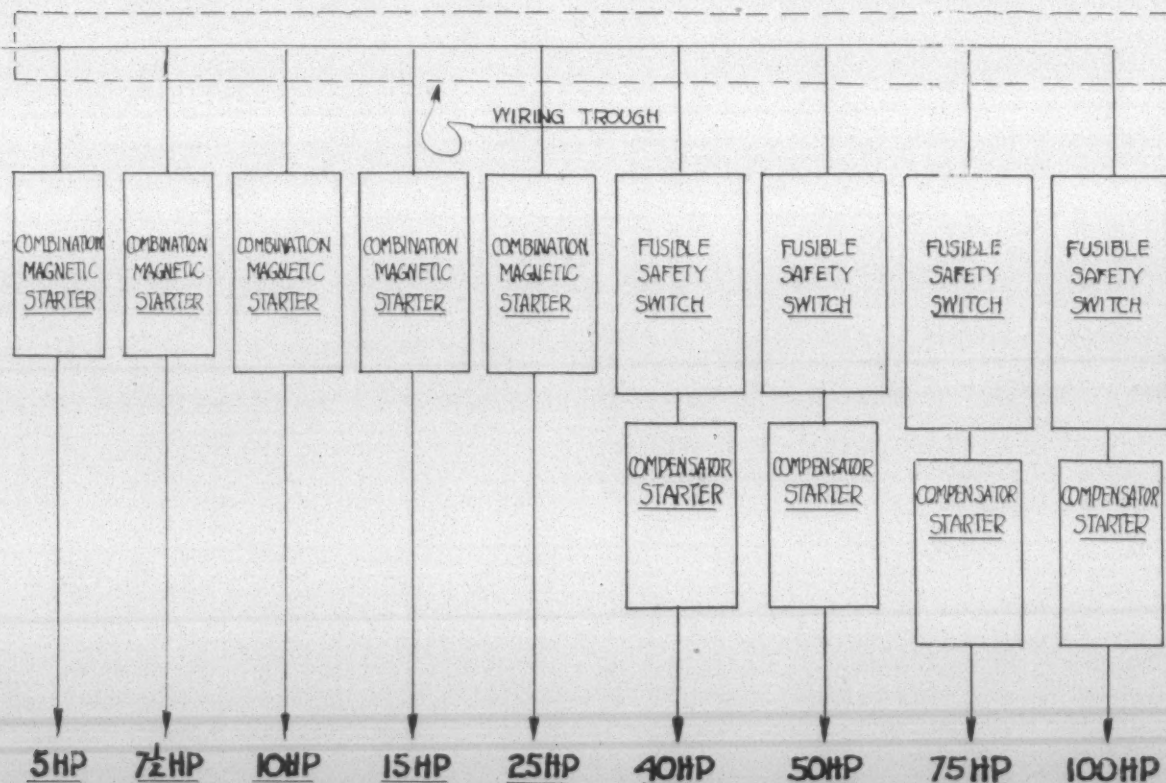
that is by studying features of each type of insulation mentioned. For instance, by examining Table No. 1, herewith, with temperature correction factors for use in rooms of over 86° F., you will see that all of the types of insulation in Column 1 cause the carrying capacity of the wire to be considerably reduced or derated as compared to the allowable rating of either Rubber Type RH or Varnished-Cambric Type V.

For instance, take a circuit across the ceiling of the average mill where the temperature may be around the 122° F. level. Here the first column types of insulation allow the wire to carry only 58 per cent of the current allowed at 86° F.; while the second column, Rubber Type RH allows 75 per cent, and the third column insulation, Varnished-Cambric Type V allows 80 per cent. So, it would seem that for average mill use we would be justified in using either of the latter two, depending upon our current carrying requirements, operating temperatures, such as boiler rooms, slasher rooms, etc.

Take the case of the motors of Sketch No. 5 which might be used in a boiler room, where the temperature could easily be 122° F., with the correction factors of 58 per cent, 75 per cent and 80 per cent, as mentioned above, and calculate the wire capacity required for the various motors of Sketch No. 5:

Motor H.P.	Wire Amperes	58% Rating Amps	75% Rating Amps	80% Rating Amps
5 H.P.	7.5	12.8	10.0	9.4
7½ H.P.	11.25	19.3	15.0	14.1
10 H.P.	13.75	23.7	18.4	17.2
15 H.P.	20.00	39.4	26.6	25.0
25 H.P.	32.50	56.0	43.2	40.0
40 H.P.	51.25	88.3	68.0	64.0
50 H.P.	62.50	93.0	83.0	78.0
75 H.P.	92.50	160.0	124.0	116.0
100 H.P.	122.50	210.0	163.0	153.0

Now, with the current carrying capacity of the wires calculated for the different types of insulations, let's see what

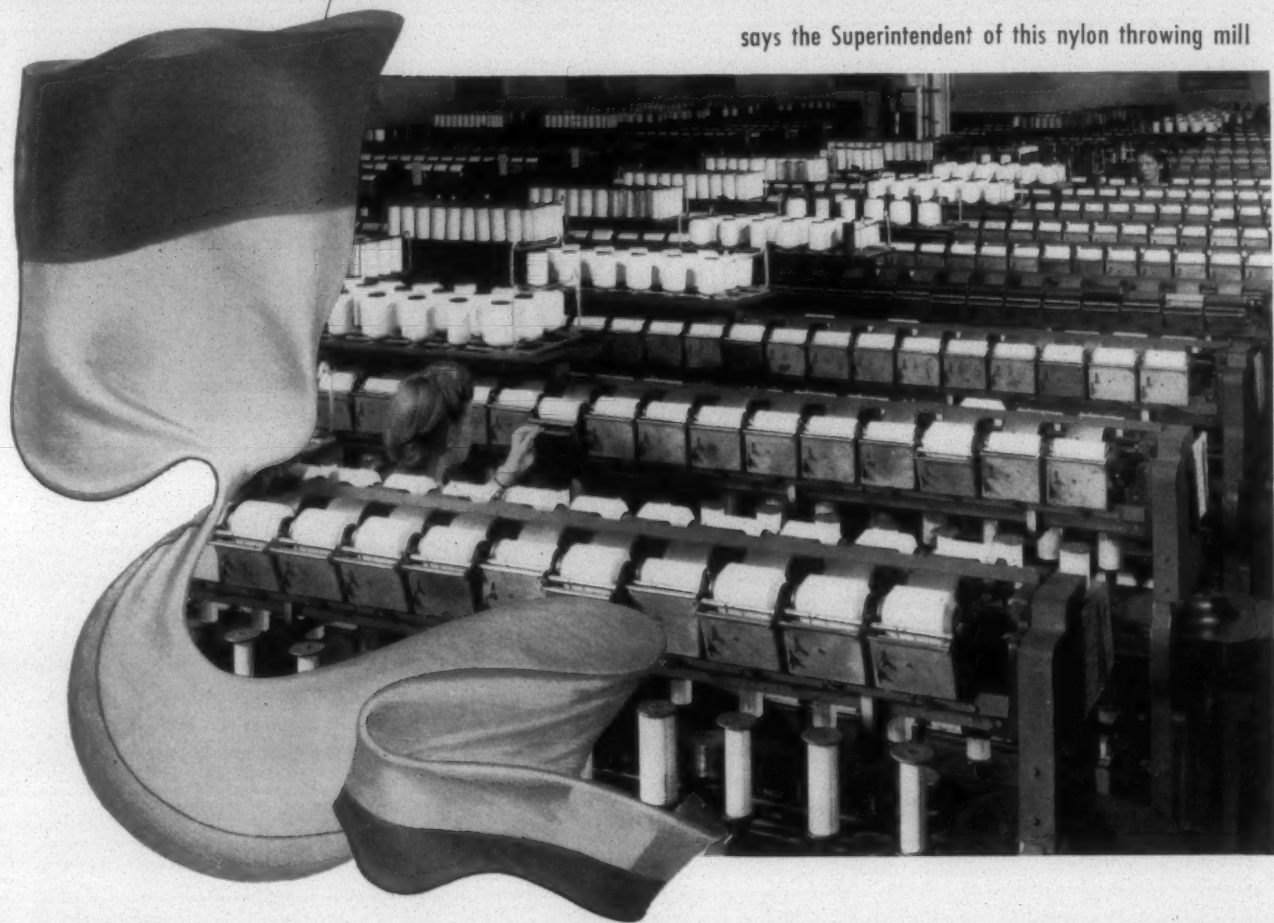


Sketch No. 5

"with **GULFGEM OIL**

we eliminated sludge deposits
and excessive spindle wear"

says the Superintendent of this nylon throwing mill



"GULFGEM OIL is the finest oil we know about for the lubrication of high-speed nylon twister spindles," says the Superintendent of this modern nylon throwing mill. "It's the only oil of those we have tried that stands up under our spindle speeds of 14,000 r.p.m."

"With ordinary oil, we had sludge deposits on our spindles and excessive wear—found it necessary once a week to clean out spindle bases and put in fresh lubricant. Now with Gulfgem Oil we operate six weeks before changing—and even then this quality oil is clean and clear. And we have eliminated excessive wear and spindle wobble."

Gulfgem, the world's finest spindle oil, is one of many Gulf quality lubricants that are writing a list of tangible benefits in the operating records

of hundreds of textile mills from Maine to New Mexico. This "dividend" list includes less wear, improved efficiency, greater production, and lower maintenance and power costs.

For effective help in improving lubrication in your mill, write, wire, or phone your nearest Gulf office today and ask a Gulf Lubrication Engineer to call.

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all this means to us in actual wire sizes and the necessary conduit sizes to take three of these wires:

Motor H.P.	250 MCM		2 1/2"		Column No. 3	
	Column No. 1	Column No. 2	Column No. 2	Column No. 2	Column No. 3	Column No. 3
5 H.P.	Wire Size	Conduit	Wire Size	Conduit	Wire Size	Conduit
7 1/2 H.P.	14 or 12	1 1/2"	14 or 12	1 1/2"	14 or 12	1 1/2"
10 H.P.	12	1 1/2"	12	1 1/2"	12	1 1/2"
15 H.P.	10	3/4"	10	3/4"	12	1 1/2"
25 H.P.	8	3/4"	8	3/4"	10 or 8	3/4"
40 H.P.	4	1 1/4"	4	1 1/4"	6	1"
50 H.P.	2	1 1/4"	4	1 1/4"	4	1 1/4"
75 H.P.	2	1 1/4"	1	1 1/2"	1	1 1/4"
100 H.P.	3/0	2"	2/0	2"	1/0	2"

This shows us that Rubber or Thermoplastic insulations (first column) are out as far as your average mill require-

ments are concerned. Also, we find that Type RH and Type VC wire and cable are practically "neck and neck" on their sizes and on the necessary conduit sizes. So, when you figure your job, your decision as to which of the column type of wire you use will depend on what is available in those types, along with the very important consideration of prices.

Let me mention that Sketch No. 2 is the "key" to the Electrical Code, and will certainly warrant your study and references to your new 1947 National Electrical Code. Who wants one? They are available in large, bound volumes for \$1.50 each. If you want one, send us your name and address along with your check and your copy will come along as soon as we can get it from the printers.

Materials Handling

The Plant Materials Handling Engineer

By O. E. JOHNSON

IF one would say "the plant engineer," leaving off the words "materials handling," immediately everyone would be conversant with just what his job is and what his value, duties and authorities are. Needless to remind you that he would be in charge of the power house, electricians, pipe fitters, carpenters, etc., and in some plants machine repair. In general, we would say that he was in charge of maintenance and service buildings, equipment and facilities and would be charged with keeping the machinery running in a well-lighted, heated, air conditioned plant to provide in the way of service everything that will provide for labor and management that which is needed to accomplish production.

I use this introduction to now draw your attention to who the plant materials handling engineer is. He is the engineer who is in charge of receiving, transporting, storing and shipping productive materials. Materials handling, therefore, is descriptive of the job he has to do. What are the qualifications necessary for the plant materials handling engineer?

He must be a man who has proven his desire to be of service, for he is to be in charge of a service department. The better he and his department serves manufacturing, the more the manufacturing departments can concentrate on quality, volume and economy. He should be a schooled engineer—either someone with a college degree who has proven his worth, or schooled through experience to have proven his capabilities. He must be co-operative. Again, because he and his departments serve manufacturing, he necessarily comes in contact in his normal day with most of the entire personnel in the organization. He must have a pleasing personality, yet firm in his convictions; for one of his chief jobs is that of co-ordination, and particularly that of so co-ordinating men and equipments to serve manufacturing efficiently. He must have the ability to organize and train men. The ability to pick the right man for the job where his experience and ability will best result in efficient operation. Then the job of training his supervision to be

materials handling conscious to accomplish efficient service to manufacturing. He must be orderly and neat in his conduct and thinking so that he might inspire and train toward the goal of having a place for everything and everything in its place. Because, having been given the job he must bring order out of disorder, by so doing he will be ever conscious of the economies resulting therefrom. Last but not least, he must be economical and aggressive in his thinking and planning and persistent in ever improving procedures, methods and systems and never feeling that his job of service to manufacturing is complete because of potential increased savings.

We believe this brief definition of what a plant material handling engineer should be will cause industrial management to be careful and thoughtful in picking the best possible individual to do the job. By so doing management will be relieving themselves and the whole organization of a lot of headaches and trouble, and providing a means whereby materials will flow to accomplish uninterrupted production. Manufacturing says, "Give us the materials ahead of when needed, so packaged that we don't have to wear labor out to get to them conveniently, place them orderly so that our departments will be clean, and move the finished product out of our way and we will give you volume production, economically." Material handling says "We will do," and then do it.

His Value

We have already touched upon his value in some respects but now let's see if we can't be more conclusive:

He assumes complete responsibility for flow and storage of productive materials. Result—manufacturing need not worry about it.

He is charged with his part to keep the plant clean. He, therefore, insists on plant engineering maintaining well painted aisle marks, and schools his organization in keeping materials flowing between them, and piling materials be-

hind them (not on them), on pallets or vendors' furnished unit packs, placed square with, and behind these lines. Result—we have a clean orderly looking shop of which we are proud.

He is continuously responsible to confer with plant engineering and request plant layout changes, or is consulted when a manufacturing layout change becomes necessary, so that efficient economical material handling will be accomplished. Result—he relieves plant engineering and manufacturing of those responsibilities.

He is responsible for providing modern handling and transporting equipment in quantities and where needed. Result—through appropriation approval management finds out what is needed and savings resulting therefrom.

He must unload and load cars and trucks by modern means mechanically, quickly and economically. Result—traffic doesn't pay excessive demurrage and all carriers, rail, truck and air, are anxious to serve the company.

He sees that receiving reports are written promptly. Result—accounts payable doesn't have trouble discounting invoices. Production planning knows quickly what has been received and is available.

He sees that shipments are made promptly, packaged most economically and shipping papers forwarded quickly. Result—accounts receivable has no troubles, sales department experiences satisfied customers.

He arranges with plant engineering for preventative maintenance of industrial and highway trucks and all materials handling equipment. Result—equipment pays higher dividend through longer serviceability. New modern equipment replaces several older, obsoleted, worn out units, prohibitive because of maintenance costs.

Whereas there are many other ways in which his value to industry can be portrayed yet the preceding remarks summarizes those most important and should arouse management's thinking to the conclusion of appointing someone quickly to such a position if they have not already done so.

His Duties

Again, we have already suggested some of his duties but we learn, you know, by repetition. Let us see if again we can enumerate and enlarge upon them so that we will all have a clearer understanding of them. Naturally, we accredit to him all the duties of the departments and supervision under his control.

He is in charge of a division, and therefore his first duty is that of a division head. This means that through a clearly drawn organization chart, he has shown his departments and supervision to whom they report, and what their duties are. This means that he will direct his supervision through organizational channels. Needless to say, his most important job is the training and co-ordinating of his supervision. He must spend much time in this endeavor, through periodic meetings of his supervision and at all times must keep his ears open to suggestion, and jump in and help where help is requested or needed. He must inspire them to work together as a team, each playing an equally important position. In this endeavor it is paramount that they get to know each other socially as well, for the better they become acquainted, the better they can work together as a team.

His receiving room foreman has the following duties to perform through him: check quantities received against packing slip in their order of arrival; write receiving reports promptly; write material transfer showing clearly bay and

area to which material is to be transported, as indicated to them from their records, as taken from the plant material layout; push transportation to keep materials flowing out of the receiving room or from unloading spot.

In summarizing transportation responsibilities it is of the greatest importance that the plant material handling engineer receive all literature, visit expositions, and be at all times conversant with the most modern trucks and accessories available. Shop safety also must be predominant in his thinking throughout his whole division. For he services the whole plant and either his own men may endanger themselves or others if they are not at all times ultra careful. These truckers must be trained to place pallets behind aisle marks squarely.

In stores responsibility it is of the greatest importance that the plant materials handling engineer fully realizes that he is custodian of all productive material. Inventory is dollars. The more frequent inventory turn-over occurs throughout the year the more profits will be forthcoming. He must insist on accurate stores records and the closest co-ordination is necessary with production planning. When banks of material become too large he must be advised and with production planning insist on reduction of same—vice-versa, when shortages are apparent he and his stores organization are responsible to see that the material is delivered to point of use to avoid shutdown.

The plant materials handling engineer must remember that his shipping responsibilities directly influences volume of sales. He must continuously keep shipments on the move and provide through the traffic department enough outside carrier facilities for movement of same. Sales and top management will be continuously watching results of this function.

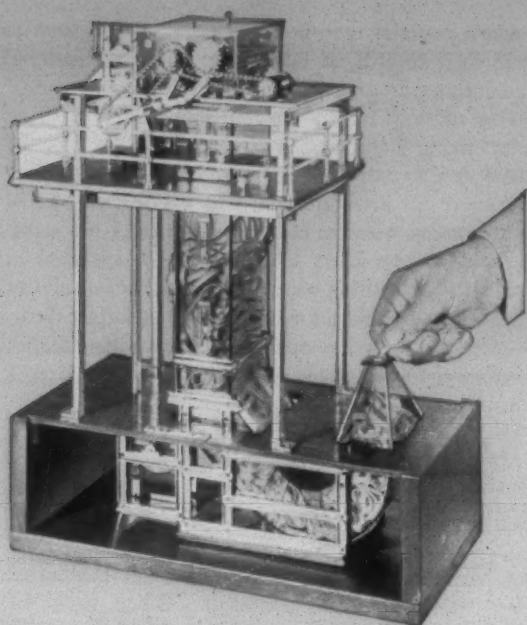
His Authorities

Should top management delegate to him the responsibilities necessary, he will report either to the plant manager or production manager. He will have full responsibility for all productive materials and inventory within the plant. He will therefore have full authority to receive, transport, store, package and ship same, using the most modern equipment and methods to accomplish an ever constant uninterrupted flow of material from the time it enters the plant until it leaves the plant as finished product bringing to the corporation dollars resulting from successful sales, arriving at the customer adequately packed ahead of schedule to meet customer demand keeping them satisfied.

Depending on the calibre of man picked, his success in assuming the responsibilities delegated, forming and training an efficient organization to function, and his ability to succeed, sells to management the position of plant materials handling engineer. Personally I am convinced that he is here to stay and in those industries where they have not yet given this position consideration, he is to soon appear.

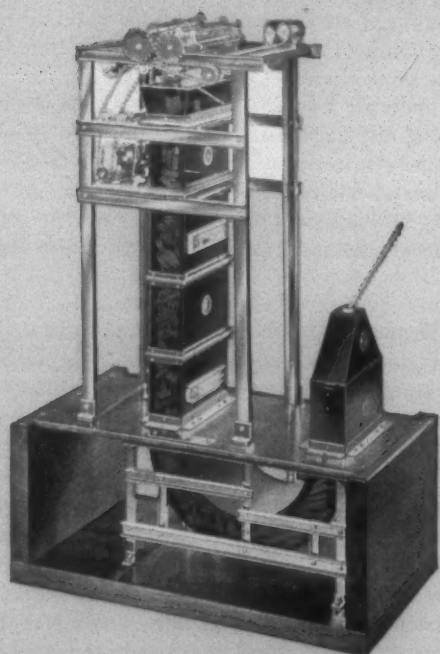
This article is abstracted from an address before the Conference on Materials Handling held concurrently with the National Materials Handling Exposition at Cleveland, Ohio, in January.

Handling Materials, one of the first publications devoted exclusively to the science of materials handling, assumed an entirely new format with its 1948 issues. The magazine, published quarterly by Towmotor Corp., Cleveland, Ohio, manufacturer of fork lift trucks, industrial tractors and fork lift truck accessories, is now known as *Handling Materials Illustrated*.



How to take the "guess" out of

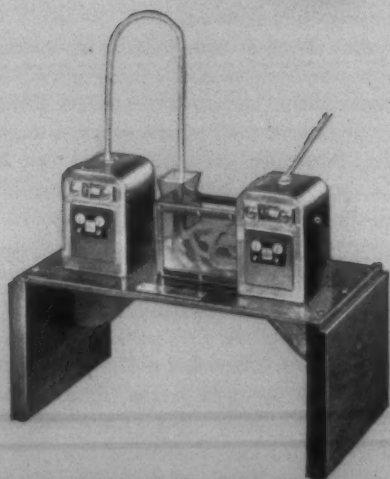
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Bleaching, Dyeing & Finishing

Dyeing Past And Present

By FRANCIS TRIPP, B. Sc., M. S., Ch. E., Head of Chemistry Department, New Bedford (Mass.) Textile Institute

PREVIOUS to the synthesis of mauve by Perkin in 1856 the principal coloring materials available for dyeing and printing textile fabrics were of vegetable and mineral origin. The natural dyestuffs of vegetable origin were usually obtained from the various plants by extraction of the coloring matter from the leaves or roots with hot water.

One of the common practices for heating and boiling the water was to immerse hot stones into the dyebath. Hollowed out wooden bowls or containers made of pottery served as vessels for holding the solutions. The dyers of this ancient period found out that certain of these natural dyes could be fixed on the material more permanently if the material to be dyed was immersed in a solution containing certain metallic salts previous to the dyeing operation. They also found that a variety of colors could be produced using the same natural dye if the material to be dyed was previously treated in solutions of various metallic salts. This was the beginning of the practice of mordanting.

The mineral dyes came into use when early observations revealed that oftentimes yarns and fabrics immersed in the waters of certain springs could be stained by soluble iron salts that were often present in various localities. Other mineral colors that followed during later years were Chrome Yellow, Prussian Blue and Ultramarine.

Of all the known dyestuffs, indigo is the oldest. It was used in India and Egypt long before the Christian era. Natural indigo was obtained in the largest amounts from India previous to the production of synthetic indigo by the Badische Anilin- & Soda-Fabrik Ludwigshafen on Rhine in 1897. Natural indigo is still being produced in certain parts of the world. The New Bedford Textile Institute has recently received a quantity of natural indigo from San Salvador, C. A.

Much has been written in the literature on the cultivation and preparation of natural indigo. However, a brief discussion should be of interest. The indigo plant is a shrub growing three to four feet high. The leaves of the indigo plant are the chief source of the coloring matter. The plants are cut in Summer and tied in bundles and packed in long vats which are filled with water. The plants are steeped for nine to 14 hours in the vats. After two or three hours steeping fermentation begins, the liquid rises in the vat and the surface of the steeping vat is covered with froth. After the liquid subsides, it then runs into a so-called beating vat where it is aerated by beating the surface with bamboo sticks or by means of a beating wheel (paddle) which is used to churn up the water. This process of oxidation produces indigo blue which precipitates from the bath. After the oxidation is complete, the sludge (indigo blue) is allowed to settle and the top liquor drawn off. The

precipitated sludge is then strained, heated, pressed, cut and dried.

In the days of old, many traditional vat recipes were employed in applying indigo to yarns and fabrics. The oldest form of indigo vat was the ancient fermentation method. Such ferments as dates, molasses syrup, bran, flour, fruits and wine were utilized together with alkalies such as lime, wood ashes and naturally occurring soda. Bacterial action on the fermentative materials produced hydrogen, which brought about the reduction of the indigo to indigo white, which in turn dissolved in the alkaline solution. The amounts of alkali present in the bath also served to regulate the rate of fermentation, an important factor in obtaining the proper dye bath. Other kinds of vats employed in the dyeing of indigo include the zinc-lime vat, bisulphite-zinc-lime vat, and the hydrosulphite-ammonia vat.

During the early periods when natural indigo was in common use, the dyestuff was purchased by dyers who were without knowledge concerning its color value. Considerable variations existed between batches due to the locality from which it was obtained and to the methods of harvest and preparation of the natural product. The introduction of synthetic indigo brought about an accelerated period of scientific advancement in the art of dyeing. The definite composition and purity of the synthetic product eliminated such troublesome impurities as indigo brown, indigo red and indigo gluten that were prevalent in most lots of the natural product. New derivatives of synthetic indigo were developed so that shades could be varied from blue to green or to the red side.

The antiquated methods of indigo dyeing gave way to scientific procedures and the dyers gradually became acquainted with the exact chemical changes that were taking place during the application of the dyestuffs to the fabric. At the present time synthetic indigo can be purchased in either the powder form or as a paste. The chemicals employed in dyeing procedures are the conventional sodium hydrosulfite and sodium hydroxide used in vat dyeing. Considerable amounts of synthetic indigo are still used in this country for the production of blue shades on wool and cotton. The ancient fermentation vats utilizing natural indigo undoubtedly still can be found in the isolated regions of several foreign countries.

Logwood

Logwood is one of the natural dyes that is still being used to a considerable extent. At the present time it is marketed in the form of logwood extract, logwood chips or as logwood crystals. Originally, logwood was known as

campeachy wood since it was first obtained by the Spaniards from the shores of Campeachy Bay in Mexico. Later on when the supply from that source was exhausted it was obtained commercially in large quantities from South America, the Dominican Republic, Honduras and Jamaica.

Logwood is extracted from the wood of a large tree (*haematoxylin campechianum*). When the wood is first cut it is practically colorless but gradually changes on the exterior parts to a reddish brown color. The interior portion changes to yellow or light orange. The principal coloring matter of logwood is haematoxylin which later is converted to haematein by oxidation. This change is accomplished by chipping or rasping the wood and, after thoroughly wetting it, piling it in heaps three or four feet high. The piles are turned at frequent intervals in order to introduce air and also to control the temperature caused by the fermentative reaction. After the reaction has proceeded to the proper stage the haematoxylin has been converted to haematein. The extract is prepared by extracting unaged wood chips with water and evaporating the extract to a strength of about 51° Tw. Modern practices are in use by which the haematoxylin is converted into haematein by chemical means. Extracts are also available containing fixed amounts of haematoxylin and haematein. Logwood has been an important dyestuff used in the dyeing of purple and black shades. It is used in large quantities in both wool, silk and cotton dyeing. Recently published literature reports its use in the dyeing of nylon. Logwood is applied to fabrics and yarns with the assistance of mordants. The common practice for dyeing cotton is to use a concentrated solution of logwood followed by a treatment with a solution of sodium bichromate. Other assistance such as sulphuric acid, organic acids and various salts are used in the dyebath. Wool is usually mordanted first with the dyeing as the second operation. Logwood black on silk has long been a favorite in the textile trade. One of the favorite old time formulas was to treat the silk in a bath containing logwood extract, fustic, copperas and copper acetate. After ageing, the silk was dyed a second time in a bath containing logwood extract and soap.

Fustic has been used extensively in combination with logwood for production of blacks, browns and olive. It is obtained from the wood of a tree known as *chlorophora tinctoria* found in Brazil, Central America and the West Indies. The wood is usually aged in a manner similar to that described for logwood and sold as chipped or rasped wood and as solid or liquid extract. In years past it was used with various mordants such as alum, chromium, iron, tin and copper to give shades of yellow or olive colors. Its principal use was for dyeing woolens.

Quercitron is obtained from the inner bark of a species of oak (*quercus nigra* or *quercus tinctoria*) found in the Carolinas, Georgia and Pennsylvania. The bark is dried, ground and marketed in powder form. It is applied in the same manner as fustic to produce various shades of yellow. Flavine is a highly purified extract of the coloring matter of quercitron bark and was formerly used for the dyeing of wool and silk. Osage orange is a natural dyestuff similar to fustic. It is obtained as an extract from the wood of the osage orange tree found in Southwestern sections of the United States.

Weld is another yellow coloring matter that at one time was valuable because of its fastness to light. The coloring matter was obtained from the plant which grows to a height of about three feet. Most of the coloring matter was obtained from the leaves. Most of it was produced in England and on the continent of Europe. Turmeric is a yellow dye obtained from the ground roots of the *curcuma tinctoria*, a plant that grows in China and the East Indies. The dye is used both with mordants and without the use of mordants in dyeing wool, silk and cotton. It was formerly used in Asia and in India in fairly large quantities. Its lack of fastness to light and washing caused its gradual decline as an important natural dyestuff.

Persian berries are obtained from a variety of shrub (buckthorn) prevalent in the southern portion of Europe and the East. The extracts of Persian berries were once used in large quantities for the printing of yellow, orange and green shades and to a small extent in the dyeing of wool. Woad is obtained from the leaves of the woad plant, which was once a valuable source of the blue dyestuff previous to the introduction of indigo to Western Europe. It was cultivated in Europe and England for many years. The coloring matter was obtained from the leaves by a fermentation process. Powerful syndicates of woad growers tried to block the importation of indigo to England but gradually indigo got a foothold and woad disappeared from the market.

Madder was used as a dyestuff by the Egyptians. It was obtained from a root of a plant (*rubia tinctorum*). In about 700 A. D. its cultivation was started in Europe, and Holland became an important producer. Later on the military fabrics of England and France were dyed red by the use of madder. Alizarine was found to be the most important coloring matter of madder. With the introduction to the market of synthetic alizarine, madder gradually disappeared. Madder was used in the dyeing of both wool and cotton with a variety of shades being produced by the use of selective metallic mordants. Cutch is the dried extract from wood (*acacia catechu*) and other trees found in India. The wood is extracted with boiling water and the extract concentrated to a syrup. It then solidifies on cooling into a dark brown cake. Cutch was formerly used for dyeing both cotton and wool a brown shade that was fairly fast to light.

There are dozens of other vegetable dyestuffs used at one time or another by ancient man and probably to a very small extent during present times. Saffron is a yellow dye obtained from the *Crocus sativus* and in early days was used by the Greeks, Romans and Egyptians for the dyeing of clothes and carpets. Safflower, extracted from the floret heads of the thistle (*carthamus tinctorius*) was used for a substitute for saffron.

Young fustic from the tree (*rhus cotinus*) of Europe and Asia was used in ancient days. Brazilwood (*caesalpinia echinata*), a redwood of Brazil and Asia, when prepared by a fermentation process, yields a red dye. It was once an important commodity in world trading in days gone by. Orseille, obtained from lichens in the Mediterranean section was used as a purple dye. Gambir, a yellow dyestuff, was obtained from the leaves and twigs of an Asiatic shrub.

Prominent among the animal dyes were cochineal, lac and tyrian purple. In the early days of Europe, a prominent source of red dye was kermes, an organism that thrived on the leaves and stems of holly and oak. This dye was used in



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abundance until the introduction of cochineal from Mexico during the latter part of the 17th century. Cochineal is the female specie of an insect that grows on the cactus. The insects are brushed from the cactus leaves and killed by heat. It takes about 70,000 insects to make a pound of dried cochineal dye. The woolen coats of the British soldiers were at one time dyed a scarlet with cochineal. Lac is a resinous secretion of the insect *coccus tachardia lacca* found

in India and Asia. It produces shades of scarlet on wool. Tyrian purple was once a favorite dye in European circles. It was obtained from purpura shellfish found in the Mediterranean waters and in the Atlantic along the African coast. The source of the dye was in the mucous gland of the shellfish. The shellfish were crushed, the gland removed, salted and extracted with hot water, in order to prepare the dye solution. Materials to be dyed were immersed in the dye bath, removed and exposed to the action of sunlight in order to allow the color to develop.

Latex Processes And Potentialities

By W. H. STEVENS, A.R.C.S., F.R.I.C., Consulting Chemist

AS the dictionary has it, fibers are the "fine, slender, thread-like or hair-like bodies of which the tissues of animals and plants are partly constituted." Nowadays, in addition to these natural fibers, we are also becoming increasingly familiar with synthetic fibers made by the extrusion through fine orifices of synthetic "plastics" such as nylon; also semi-synthetic fibers such as rayon. Over the last 20 to 30 years, during which great strides have been made in the application of latex to a wide range of new products, composites of latex and fibers have figured prominently.

Before discussing these fiber processes and products in detail, it is convenient to develop a short classification according to the purpose of the new applications, for example, as follows: *impregnated products*, such as cords, felts, asbestos and cotton battings; *coated products*, such as proofed fabrics and balloon cloth; *bonded products*, such as upholstery fibers, hair, etc.; *adhered products*, such as doubled fabrics, sacking, carpets and mats. This classification cannot, of course, be rigidly maintained. For instance, coated fibers may also be bonded by molding, while the impregnation of fabric or uncorded fiber masses is in reality a coating of the individual fibers. The list, however, serves to differentiate and classify the main applications.

Combining Latex and Fibers

In the ordinary way the adhesiveness of latex rubber deposits causes them to attach themselves firmly to fibers and to fibrous products unless these are very dense. Therefore, when one is dealing with fairly substantial deposits of rubber on fibrous materials of average "openness," such as woven or knitted textiles, coatings with good adhesion are obtainable.

Latex may be readily thinned by diluting with water or thickened by compounding with fillers, and with colloids such as casein and glue, etc.; so that the heaviness of deposits can be varied widely. Thus in distinguishing between impregnation and coating it will be found that both are readily achieved, for any given fabric, by making such variations of concentration and viscosity. Also impregnation is aided by the use of wetting agents while coating compositions should probably exclude them, though much depends on the openness of the fabric and the result that is aimed at.

If an open fabric is to be coated the latex composition must be viscous and devoid of wetting agents if striking

through is to be prevented. Whereas on a close weave the same mixture might have insufficient adhesion unless it had a high degree of wetting power.

In a general way it may be said that the production of fairly substantial coatings of rubber represents a more fool-proof procedure than the obtaining of light deposits, individual fiber coatings, special effects and so on. Particularly where one is concerned with coating fibers individually it is necessary to employ a special product and technique because of the similarity of the electric charge on the latex particle and that on the average textile fiber. In such cases one must use Positex, which, as the name implies, is latex with positively charged rubber particles, in contrast to the normal negatively charged material. Since fibers are also negatively charged, the negatively charged rubber particles, in an otherwise suitable bath, are repelled and no deposition of rubber on the textile results. Since it is only by the limited application of rubber, by coating the individual fibers, thus leaving open the interstices, that results other than actual proofings, that is, complete coatings, are obtainable, it is clear that this method is of considerable importance. Reference should be made to the series of pamphlets on Positex for full information on this process, but the matter may be suitably illustrated by a short example. An openwork mat of hemp yarn for use as a carpet base was totally immersed in a bucket of ordinary (60 per cent) latex diluted to ten per cent rubber content and containing the usual small proportion of casein and vulcanizing ingredients for stabilization and vulcanization. Although the mat had been previously thoroughly wetted out with a dilute aqueous solution of ammonia and wetting agent, no deposition of rubber could be obtained. A similar mat, damped only with distilled water and immersed in Positex acquired a suitable deposit of rubber round the yarns.

In the main it appears that commercial developments of Positex have so far centered round the applications to woolen textiles. In the Positex method the latex is used as in a dye bath, in relatively dilute solution, which of course contrasts with more concentrated mixtures for impregnation and coating.

The method of applying ordinary latex and latex compounds follows the well known processes of padding, spreading, spraying, etc. Compounds suitable for such processes may be thickened and cheapened, if desired, by the use of fillers such as clay, whiting, kieselguhr, etc., suitably

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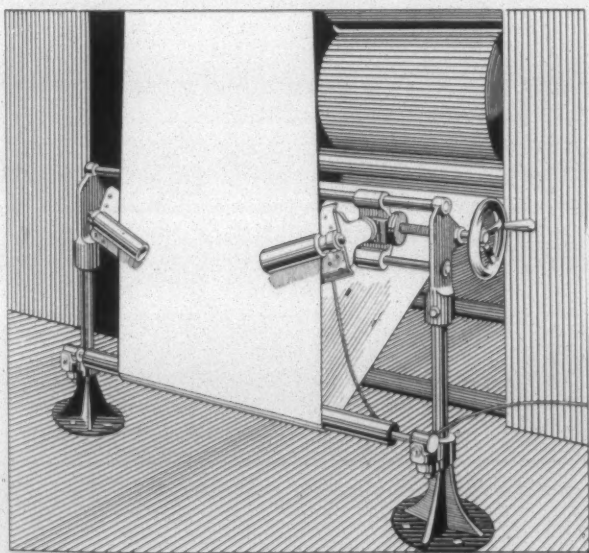


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Morton Bregman Original

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pasted with dilute casein solution before adding to vulcanizable latex. A brief description of the application methods may be given thusly: Padding consists of the immersion of a yarn or fabric in a bath of latex by passing it under a roller which rotates freely in the liquid and subsequently through squeeze rollers to remove the excess which flows back to the bath.

The process is used for impregnating tire cord. In the case of fabrics both sides and edges are treated by this method, but if the main guide roller is raised out of the bath so that the under surface of the fabric just touches the liquid it is possible to treat only one side of the fabric. The same result can be more easily achieved by running a roller in the latex and passing the cloth over the top.

The padding process is used for relatively light coatings of rubber, as well as for impregnations. For heavier coatings the spreading machine is used with a doctor blade or control roller for regulating the thickness deposited. The spreading machine normally operates with "doughs" or pastes—thickened mixings, but can, if necessary, be adapted to handle liquid mixes.

Latex compounds of the heavy or pasty type can also be applied by calender. Suitable drying arrangements are always necessary, such as steam chests or heated drums, etc., and since it is water that has to be evaporated a sufficient time must be allowed during passage through the drying apparatus for this to take place. This part of the process is, of course, slower than when using rubber solutions in organic solvents, but it has the advantage that there is no solvent requiring recovery.

When application of latex has to be made to loose fibers or fibers in lightly compacted masses, for example, for upholstery, this can be done conveniently by dipping or spraying.

In the case of light deposits of rubber, whether obtained by dyebath, padding or other process, special attention is necessary as regards compounding for resistance to ageing and oxidation. It has been found that very thin deposits of rubber on open fabrics oxidize readily no doubt due to the high ratio of exposed surface to volume of the rubber when this is thinly spread on air permeable fabrics. These latter may also be open to the light which is usually severe in its ageing effect on plain rubber. Good protection is obtainable, however, by compounding with suitable chemical antioxidants, and, when permissible, by including pigments. Black rubbers usually age better than other colors in such applications because carbon black is used, which is beneficial while for light colors antioxidants must be chosen which do not cause staining on exposure to light. Dyes or other additions which might introduce copper or manganese salts must be rigidly excluded as these promote ageing of rubber.

In the past controversy centered on the degree of approach that was possible for latex particles to fibers and some authorities considered that the smallest particles might penetrate the individual fibers.

It may be said that today the view is usually taken that no penetration of the actual fiber occurs even under the most favorable conditions, for the simple reason that the latex particle is too large. On the other hand, good coating round the fibers can be obtained. This results from the impregnation of textile cords, yarns and threads, which is

greatly aided by incorporating a small proportion of wetting agent in the latex. Thus, for example, tire cords are impregnated with latex in place of the previously used rubber solutions, with the resulting benefits of increased strength and durability that follow the use of virgin rubber.

Turning to the applications of latex in conjunction with fibers, it is convenient to revert to the classification already enumerated; thus, one of the largest uses has been in the manufacture of impregnated fibrous materials.

Cotton tire cord has already been mentioned and was probably the development of most interest to the rubber industry originally because of the improvement that latex impregnation made possible in tire construction. Similar considerations apply to other rubberized tire fabrics. When GR-S synthetic rubber had to be used in tires in conjunction with rayon cord during the late war, the adhesion between these two materials was insufficient for good performance; this problem was eventually solved by using special adhesives comprising latex and synthetic (resorcinol) resin. This leads to mention of the field that appears to exist for the development of latex treatments for synthetic fibers; as exemplified by the published process of pigmenting and delustering cellulose acetate. This type of finish would seem to merit application to the newer synthetic fibers.

Other Products

Other directions in which latex/fiber products have been manufactured by impregnation processes include belting, hose covers, and shoemaking fabrics, also impregnated felts, asbestos products and cotton battings. The last mentioned is an interesting product, for a cotton batting or fleece consists of long cotton fibers, lightly carded, and then impregnated by being padded or sprayed with latex. Such a fleece naturally has a very open structure and the latex penetrates freely after which it should be coagulated in situ to prevent the migration of the rubber to the surface which is otherwise experienced. The resulting material, after suitable rolling, drying, embossing, etc., is extremely strong and tough and is used as a substitute for leather, for example, for book-binding. The original proposal for making this type of product came from Thomas Hancock, the "Father" of the rubber industry, and it has been extensively investigated since that time. Hancock had patented the treatment of felt, cotton wool, hair, etc., with latex for making artificial leather and like materials.

In all the applications of latex to fibers, improvement in wear, resilience, etc., results from the protection of the fibers by their rubber coatings against abrasion with one another, etc., when movement occurs.

Turning to latex coated materials, these include the well-known class of proofed goods, namely: raincoats, hospital sheeting, material for fabricating sponge bags, etc., and various special uses such as impermeable fabrics for balloons and other forms of artificial leather which are more of the nature of leathercloth. In this last-mentioned product the latex may be used primarily as an adhesive for doubling the fabric which is then surface coated with nitrocellulose composition in the usual way. The result is a very strong durable fabric, suitable for transportation upholstery and similar uses. Other applications of latex coatings on fibers include the treatment of jute fabrics, wool packs, ropes and twines, etc., for the purpose of binding the yarns and preventing graying. In the case of wool packs a big advantage is the

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When the barbarian invasion swept away the Roman Empire, a group of refugees found sanctuary on a cluster of sandy islets in the Adriatic. This little settlement, destined to become romantic Venice—pearl of the Renaissance—early established trade with Byzantium and the Orient. Her rich damasks and brocades, woven from lustrous yarn dyed threads, reflected a harmonious blend of East and West and were in great demand by seekers of quality the world over. Then, as now, color sold textiles.

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less ends down

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ROLL COVERINGS

In a test in which 1,134 spindles were observed and which covered 13,261 spindle hours in a large southern mill, *Dayco* Roll Coverings showed fewer lap ups on top and bottom rolls and 11.7% less unclassified ends down. Actually, there were more than three times as many lap ups on the bottom rolls where competitive roll coverings were used, although all the bottom steel rolls had just been reworked and were in top operating condition. Both the *Dayco* and competitive roll coverings had been in use from three to four months at the time the test was conducted.

Test after test, under actual operating conditions, proves that *Daycos* run with 10% to 50% fewer ends down than other makes of roll coverings. *Daycos* consistently outperform other roll coverings because they are built with exactly the right amount of cushion and the correct coefficient of friction. *Daycos* are not affected by temperature or humidity. They retain their superior physical properties throughout their long service life. In fact, the characteristics of *Dayco* Roll Coverings are such that *Dayco's* surface drafting properties improve with use.

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BLEACHING, DYEING & FINISHING

prevention of loose jute fibers becoming detached and mixed with the wool.

Finally, mention must be made of the application of latex to carpets. Here the applied rubber may serve as an adhesive for binding the pile of the carpet or to provide a non-slip backing, or both. In both cases the rubber also provides a valuable reinforcement which improves the tread of the carpet and lengthens its life.

The very diversity of the "fine slender thread-like or hair-like bodies of which the tissues of animals and plants are partly constituted," to say nothing of man-made fibers, with all of which latex may be combined by innumerable methods tends to confuse the issue in this important field. It is hoped, however, that sufficient has been said to indicate some of the directions in which further development is warranted and may certainly be expected.

This article is abstracted from the June, 1948, issue of RUBBER DEVELOPMENTS, publication of the British Rubber Development Board.

Promotions, Resignations, Honors, Transfers, Appointments, Elections, Civic and Associational Activities

PERSONAL NEWS

A. J. Forbes, formerly district manager for the Tennessee Valley Authority at Huntsville, Ala., has joined the Fulton Bag & Cotton Mills, Atlanta, Ga., in the engineering department. He is a brother of T. M. Forbes, executive vice president of the Cotton Manufacturers Association of Georgia.



Myron S. Curtis, left, has been appointed director of engineering of the Warner & Swasey Co., Cleveland, Ohio, and has been named to the board of directors of the firm. Mr. Curtis succeeds William J. Burger, who retired

June 30. Mr. Curtis joined the Warner & Swasey engineering staff in 1941 and was one of the members of the planning committee named in 1943 to guide the company's investigation and development of new products. In this capacity he has been largely responsible for the development of the Warner & Swasey Sulzer weaving machine. He was named assistant director of engineering in 1945. A native of Holbrook, Mass., he was graduated from Brown University and spent 25 years with Potter & Johnston Machine Co., Pawtucket, R. I.

W. R. Boyer, formerly assistant treasurer, has been promoted to comptroller of A. E. Staley Mfg. Co., Decatur, Ill. The former comptroller, R. C. Scherer, continues as secretary, director and member of the executive committee, but takes on some of the administrative duties formerly handled by several other company officers. E. E. Rhodes has been promoted to assistant treasurer.

Frank W. Thomas, Jr., has been named assistant general manager of sales for Mathieson Chemical Corp. His headquarters will be in New York City, and his sales activities will be in connection with the firm's specialty products.

Ray R. West has been named manager of sales of Minneapolis-Honeywell Regulator Co. products for industrial application. Mr. West has filled executive sales positions with the firm's Brown Instrument Co. unit during his more than 20 years with the Honeywell industrial division. He will make his headquarters at the Brown plant in Philadelphia, Pa. His appointment is in line with current Honeywell sales expansion and new products developments for control of temperature, humidity and pressure in industrial and specialized fields.

B. O. Creekmore has resigned at cotton buyer for Newberry (S. C.) Textile Mills to become connected with the cotton office of Abney Mills at Greenwood, S. C. He had been employed at Newberry for 21 years, and has been cotton buyer since 1933.

Horace Edwards is now superintendent of Tait Yarn Co., Inc., Lincolnton, N. C.

Clarence R. Duncan is now superintendent of Dora Yarn Mill Co., Cherryville, N. C. He succeeds Jack Dale.

Horace Ivey, formerly overseer of bleaching for Thomaston (Ga.) Cotton Mills, has accepted a position with Commander Mills, Inc., at Sand Springs, Okla.

J. E. McCarvey, formerly superintendent of the Griffin, Ga., branch of Thomaston Cotton Mills, is now manager of the Hoskins Plant of Textron Southern, Inc., which will become the property of Spatex Corp. next month.

George M. Wright, Jr., has resigned as superintendent of the No. 1 Plant of Republic Cotton Mills, Great Falls, S. C. The mills are a division of J. P. Stevens & Co., Inc.

Frederic A. Williams, textile advisor to the Economic and Scientific Section of S. C. A. P., Tokyo, Japan, has been named chief of the re-organized and expanded Textile Branch of the Industry Division of E. S. S.

Mr. Williams formerly was president and treasurer of Cannon Mills, Inc. . . . Richard Cleaves, former chief of the Textile Section of the Foreign Economic Administration, and presently on leave from Stanley-Richard Co., Inc., is to become deputy chief of the branch.

C. E. Mears is plant manager of the new E. I. du Pont de Nemours & Co.'s new nylon plant at Chattanooga, Tenn., which recently began operations. M. N. Roberts is service superintendent; S. D. Ewing, chief clerk; R. B. Hale, supervisor; and R. C. Grills, technical superintendent.

E. Denton Coker, at present temporarily associated with the Textron plants at Anderson and Belton, S. C., has been named superintendent of the new Textron Southern, Inc., plant being constructed at Hartwell, Ga., at a cost of \$2,500,000.

H. A. Sayles, formerly assistant general manager of the Barre Combing Co., South Barre, Mass., has assumed his new duties as general manager of Cedartown (Ga.) Textiles, Inc. He served with Barre for eight years.



Hill M. Hunter, Jr., left, has joined Southern Sizing Co. of Atlanta, Ga., as sales representative in the Carolinas, with headquarters at 900 Carolina Street, Greensboro, N. C. He will be assisted by Robert V. May, 414 Perry Avenue, Greenville, S. C., in the capacity of technical service representative. Mr. May formerly was overseer of slashing for Avondale Mills at Sylacauga, Ala.

F. A. Austin, for the past 13 years associated with Firestone Textile Mills, Inc., Gastonia, N. C., has been transferred to Firestone Textiles, Ltd., Woodstock, Ont.,

PERSONAL NEWS

Canada, and promoted to vice-president and general manager. . . . Upon Mr. Austin's departure, J. M. Forrest was named superintendent in charge of quality at the Gastonia plant. Mr. Forrest has been with the Gastonia unit for 2½ years and recently completed 20 years service with Firestone.

Edwin M. Bost, assistant superintendent of the Erwin Cotton Mills Co. unit at Erwin, N. C., has been named superintendent of the company's recently acquired plant at Stonewall, Miss. M. R. Harden will be manager of the plant, as previously noted.

John W. Arnall, general foreman of the finishing mill of Fieldcrest Mills at Spray, N. C., since October, 1945, has been promoted to assistant superintendent.

Maxwell N. Hoyle, Jr., has been promoted from night overseer of the mercerizing department of the American Plant of American Yarn & Processing Co. at Mt. Holly, N. C., to assistant foreman of the winding department on the first shift.

Guy G. Cromer has been appointed vice-president for manufacturing of Textron, Inc., and its subsidiaries. Mr. Cromer who was vice-president for Textron Southern, Inc., subsidiary, since its formation, will make his headquarters at the Textron executive offices in New York at 401 Fifth Avenue where he will supervise all manufacturing operations of the Textron system.

F. Sadler Love, secretary of the American Cotton Manufacturers Association since February, 1946, has been appointed execu-

tive assistant in charge of the association's activities. This appointment was a consequence of the recent death of Dr. W. P. Jacobs of Clinton, S. C., and Charlotte, N. C., the association's president-treasurer. Mr. Love also will act as treasurer of the association. Charles Caffrey will continue in charge of the A. C. M. A. offices in Washington.

Louis Lazare, formerly co-manager of the duplex fabrics division of Burlington Mills, has been elected vice-president of Burlington Mills Corp. of New York. Mr. Lazare will co-ordinate the merchandising policies of Burlington's finished goods divisions handling rayon woven goods for the apparel trade. . . . Alexander J. Ostriker, former co-manager with Mr. Lazare, becomes sole manager of the Duplex Division, with Jack Whitton promoted to the post of assistant manager.

T. J. Sizemore has been promoted to overseer of carding at Florence Mills, Greenville, S. C., a subsidiary of Cone Mills Corp., Greensboro, N. C., and W. W. Fowler has been promoted to overseer of spinning.

Hazel M. Powell has been promoted from laboratory technician at Fieldcrest Mills, Spray, N. C., to head of the Physical Testing Department. She will have supervision of all quality control testing in the Physical Testing Department.

Dr. William T. Rainey, Jr., of Salisbury, N. C., John C. Edwards of Seneca, S. C., and Richard C. Hendrix of Greenville, S. C., are recent additions to the faculty of Clemson (S. C.) College School of Textiles.

Dr. Rainey will be assistant professor of chemistry and dyeing, Mr. Edwards will be assistant professor of textiles, and Mr. Hendrix will be instructor of carding and spinning. . . . E. F. Cartee has been promoted to associate professor of weaving and designing.

Ernest H. Dreher has resigned as chief of research and development work at the Rhodhiss Plants of Pacific Mills. Prior to joining Pacific Mills, Mr. Dreher had been with the textile research department of American Viscose Corp.

Thomas S. Nichols, president and chief executive officer of Mathieson Chemical Corp., New York, has been elected to the additional post of chairman of the board to succeed the late George W. Dolan. . . . J. C. Leppart, vice-president, was elected a member of the board to fill the vacancy caused by Mr. Dolan's death, and was appointed executive vice-president.

George Bolton, formerly connected with Phoenix Mills, Inc., Statesville, N. C., has become superintendent of carding at Malden (Mass.) Spinning & Dyeing Co.

Maurice H. Davis, formerly plant cost engineer, has been named general superintendent of Maysville (Ky.) Cotton Mills operated by January & Wood Co. He succeeds W. O. Blanford, who, after 20 years as general superintendent, has taken over the post of technical adviser. Mr. Davis has been succeeded in his former post by William C. Adair.

J. E. Murphy, personnel manager of the Goodyear-Clearwater Mills at Rockmart, Ga., recently received his 30-year pin for

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PERSONAL NEWS

services with the company. The presentation was made by Vice-President S. A. Steere at a barbecue in Mr. Murphy's honor by Rockmart officials.

Walter Dillard has been appointed by Horvath Mills, Inc., as general manager of its Fort Worth (Tex.) Cotton Mills. Mr. Dillard formerly was executive vice-president and general manager of Evangeline Textile Mills and was for years vice-president and general manager of the New Braunfels (Tex.) Textile Mills. . . . Jack Moses, formerly general manager of Fort Worth Cotton Mills, has resigned in order to devote his entire time to the West (Tex.) Cotton Mills, as well as his other interests in that area.

Fred C. Schlemmer of Chattanooga, Tenn., nationally known construction engineer and for the past two years mill manager of Peerless Woolen Mills, Rossville, Ga., has been named manager of the vast Hanford, Wash., atomic plant.

H. W. Doughty, Jr., has joined the sales staff of Winsor & Jerauld Mfg. Co., Providence, R. I., manufacturer of tenters, and will represent the firm in the Southern states with headquarters at Charlotte, N. C.

John J. Bosshard has been appointed assistant manager of the fabric development department of American Viscose Corp. Mr. Bosshard has been a technician in this department for the last four years working with Walter E. Scholer, recently appointed as manager. Mr. Bosshard is a native of Switzerland and prior to his association with Viscose did technical textile work with Schwarzenbach, Huber Co., New Bedford

Silk Mills, Cheney Bros., Hellwig Dyeing Corp., Bloomsburg Mills, Inc., and William Whitman & Co.

Dr. Herbert Fineberg has been appointed chief chemist of the Glyco Products Co., Inc., Brooklyn, N. Y., and Natrium, W. Va.

Emil S. Davis, assistant treasurer and export manager of Standard-Coosa-Thatcher Co., Chattanooga, Tenn., will leave by plane the latter part of August for a month's trip in South America.

Col. Turner R. Sharp has retired as commanding officer of the Philadelphia Quartermaster Depot, a post he has held the past two years. Colonel Sharp, who is retiring from the Army after 37 years service, will be succeeded by Col. O. D. Wells, formerly depot executive officer.

Robert West, formerly head of Esmond Mills, Inc., has been appointed to work with the Assistant Secretary of the Army, Tracy S. Voorhees, who has charge of industrial mobilization procurement and re-negotiation affairs of the Army.

OBITUARY

Luther McBee, office manager for the American Spinning Division of Florence Mills at Greenville, S. C., died recently after a sudden illness. He had been associated with the firm for 25 years.

Robert E. Lindsay, 58, district service manager for Saco-Lowell Shops at Charlotte, N. C., died Aug. 10. He had been

associated with the machinery firm 32 years, and was promoted from erector to service manager in the Charlotte area in 1936. His widow, four sons and one daughter survive.

James Dunlop, 48, treasurer and a director of the Spool Cotton Co., New York, died Aug. 1 of a heart attack while in Albany, Ga. Surviving are his wife, two daughters, his mother and a sister.

Andre L. Picard, 62, vice-president in charge of the foreign division of Stein, Hall & Co., New York import-export firm, died recently. A native of Rotterdam, the Netherlands, Mr. Picard last year was knighted by Queen Wilhelmina of the Netherlands for services to the country before, during and after the recent war. Interment was made at Richmond, Va., family home of his widow, Mrs. Marjorie Leigh Picard.

Harold B. Ketchum, 58, well-known in Southern textile circles through his associations in the export business, died suddenly Aug. 8 at his home in Charlotte, N. C. A native of Brooklyn, N. Y., Mr. Ketchum moved to Charlotte in March, 1947, and at the time of his death was handling exports for Barnhardt Bros. Export Corp. and Barnhardt National Corp. Surviving are his wife, a daughter and two sons.

Ernest Rohr, 56, vice-president and general manager of the Duplan Corp. and a widely known textile authority, died Aug. 5 at his home in Bear Creek, near Wilkes-Barre, Pa. A native of Switzerland, Mr. Rohr came to this country in 1913 and entered the employ of the Duplan Corp. Surviving are his wife, a sister and two brothers.

MILL NEWS

CONSTRUCTION. NEW EQUIPMENT. FINANCIAL REPORTS. CHARTERS. AWARDS. VILLAGE ACTIVITY. SALES AND PURCHASES

SPARTANBURG, S. C.—Plans are being readied to set up a pre-employment physical examination system at Glendale Mills, Inc.

BESSEMER CITY, N. C.—Gambrell & Melville Mills Co. has initiated a modernization program expected to cost about \$250,000 when complete. Installation of new machinery is expected to require several months. The plant produces wide sheetings, utilizing 325 broad looms and 15,104 ring spindles.

LEXINGTON, N. C.—Wenonah Cotton Mills Co. celebrated its 62nd anniversary recently at a barbecue dinner attended by over 400 employees and guests. J. Melville Broughton, ex-governor of North Carolina and Democratic nominee for the U. S. Senate, addressed the gathering. Veteran employees of the firm were honored and service pins were presented 14 employees who had reached the status of ten years of service with the company.

RUTHERFORDTON, N. C.—Laurel Mills, Inc., with an authorized capital stock of 2,000 shares of no par value, has been organized and granted a charter to deal in textile products. Incorporators are A. S.

Harrill and J. S. Dockery of Rutherfordton and R. E. Carpenter of Shelby, N. C.

LAGRANGE, GA.—The Overseers' Club of Callaway Mills Co. recently held its annual memorial services on the birthday anniversary of the mills' founder, Fuller E. Callaway, Sr. J. C. Strickland, president of the Overseers' Club, and H. M. Erwin, a company employee for 31 years, placed a wreath at the base of the memorial tower, which was erected by contributions from employees.

JACKSONVILLE, ALA.—Consumers Textile & Mfg. Corp. has begun operations in its newly constructed plant here. The new plant provides 15,000 square feet of floor space.

CHARLOTTE, N. C.—The Marshall Mfg. & Processing Co. plant, owned by Leading Embroidery Co. of North Bergen, N. J., is now in operation, producing cotton gauze cloth. The plant contains 270 looms and 13,000 spindles and employs about 150 persons in three daily shifts.

GREEK, S. C.—Victory Textiles has appointed Joshua L. Baily & Co., Inc., 40 Worth Street, New York City, as sole selling

agents. The plant produces sheetings, twills, industrial fabrics and specialties.

GREENSBORO, N. C.—*Working Together*, employee handbook of Cone Mills Corp. has just been published and distributed to all employees in the Greensboro plants of the firm. First handbook of its kind to be published by Cone, the booklet is an effort on the part of the company to put into writing its personnel policies.

PHILADELPHIA, PA.—American Viscose Corp. reports consolidated net earnings of \$8,571,078 for the quarter ending June 30, 1948, equivalent, after preferred dividend requirements, to \$4.05 per share on 2,047,854 shares of common stock outstanding. These earnings compare with \$4,674,906 for the second quarter of 1947 or \$2.14 per share of common stock outstanding. Consolidated net earnings for the six months ending June 30, 1948, amounted to \$15,628,524, equal, after preferred dividends, to \$7.35 per share of common stock outstanding as compared with earnings of \$8,705,801 or \$3.96 per share for the corresponding period of 1947. These earnings are after a special provision for depreciation of \$1,-

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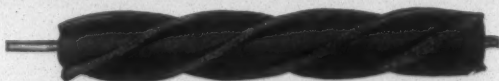


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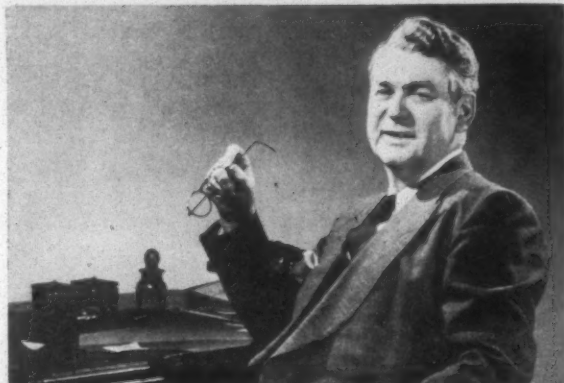
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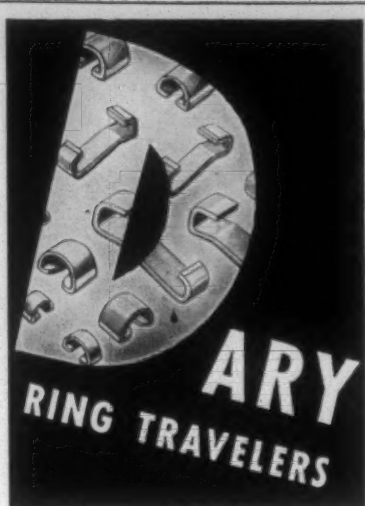
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MILL NEWS

250,000 in the second quarter of 1948 and \$2,500,000 in the first six months of 1948. The special provision for depreciation in the first six months of 1947 was \$2,400,000. Net sales for the first six months of 1948 were \$116,446,124 as compared with \$94,016,919 for the corresponding period of 1947, an increase of 24 per cent. Dividends declared during the six months ending June 30, 1948, were \$2.50 per share on the five per cent cumulative preferred stock and \$1 per share on the common stock.

GREENVILLE, S. C.—The houses in Duncan mill village are to be offered for sale to employees of the firm. Duncan Mills, a division of J. P. Stevens & Co., Inc., employs about 2,500 persons most of whom live in the village and will be directly affected by the sale.

BOSTON, MASS.—Sales and earnings of Kendall Co. and subsidiaries for the 24-week period ended June 12, 1948, were the largest for any similar period in the company's history. Net income for the period amounted to \$4,572,342 after all deductions, equal to \$11.23 a share of common stock. This compares with \$2,934,034 or \$7.13 a common share earned in the corresponding period of 1947 after providing \$500,000 contingency reserve, which was eliminated in the latter half of that year. Total sales for the period were \$40,374,291, an increase of 12.8 per cent over the same period a year ago.

GRACE'S STATION, S. C.—The Springs Cotton Mills new bleachery and finishing plant here, representing an investment of approximately \$15,000,000, is nearing completion and is expected to begin operations within a few weeks.

CLEVELAND, OHIO—Directors of Industrial Rayon Corp. at a meeting Aug. 6 declared a dividend of 75 cents per share on common stock of the corporation, payable Sept. 10, 1948, to shareholders of record Aug. 25, 1948.

GREENSBORO, N. C.—Consolidated net sales for nine months ended June 26, 1948, of \$206,776,793 were announced Aug. 16 by Burlington Mills Corp. The nine months' sales volume, which is the largest in the company's history, represents a 25 per cent increase over net sales of \$163,591,875 for the first nine months of 1947. Estimated earnings for the nine months period, after deducting state, federal and foreign income taxes totaling \$18,300,000 and after increasing the inventory reserve by \$3,000,000, amounted to \$21,108,496, as compared with earnings for the similar 1947 period of \$18,229,544. After providing for dividends on preferred stock, earnings for the first three quarters of the 1948 fiscal year are equivalent to \$5.81 per share on the 3,490,196 common shares outstanding at June 26, 1948. Earnings for the first nine months of the company's 1947 fiscal year, after provisions for dividends on preferred stock, amounted to \$5.01 per common share on the 3,468,033 shares outstanding at that time. The board of directors at a meeting Aug. 5 declared a regular quarterly dividend. The dividend is 37½ cents per share of common stock payable on Sept.

1, 1948, to stockholders of record as of close of business Aug. 11, 1948. Quarterly dividends of \$1 per share on four per cent preferred stock, 87½ cents per share on the 3½ per cent preferred stock and 87½ cents per share on the 3½ per cent convertible second preferred stock were also declared payable Sept. 1, 1948, to stockholders of record at the close of business on Aug. 11, 1948.

BELTON, S. C.—The new plant of Textron Southern, Inc., early this month began limited production, using part of the 60 looms installed with 60 more on order. The mill plans to employ about 75 persons and turn out 85,000 yards of cloth per week when full production is reached. The plant will manufacture wool and rayon blends used in women's apparel.

DURHAM, N. C.—Air conditioning systems are to be installed in the weave rooms of Erwin Cotton Mills Co. No. 1 Plant and in the carding and spinning rooms in the No. 4 Plant. Lockwood Greene Engineers, Inc., Spartanburg, S. C., office are engineers on the project and contract for the installation has been awarded to Buensod-Stacey, Inc., of New York and Charlotte, N. C.

TALLADEGA, ALA.—Highland City Mills, a new corporation and one of the newest textile mills in the country to manufacture worsted knitting and weaving yarns on the American system with machinery especially designed for the purpose, is now ready for full production. David S. Cook is president and secretary of the new firm and Frank Pate of West Point Mfg. Co. is vice-president and treasurer. Selling agent for the firm is Lanier Textile Co., 40 Worth Street, New York City.

DOUGLASVILLE, GA.—Douglas Mills, Inc., has installed an additional 2,016 spindles in an expansion and modernization program that includes not only the mill and its equipment but workers' homes in the mill village. The new spindles bring the total to 25,576. New super draft slubbers are being installed and all old looms have been overhauled from the floor up. The plant makes print cloth and 80 square sheetings. Plans call for placing 150 looms on 100 by 60 broadcloth, which will be new for the mill. The mill building has been enlarged and rewired, and fluorescent lighting installed throughout.

KINGSTON, GA.—Machinery has been installed and work has started in the new thread mill here recently purchased by G. W. Taylor of Rome, Ga. The mill is turning out wrapping twine and fringe for bedspreads.

COLUMBUS, GA.—Swift Mfg. Co. has announced plans for a second expansion program to cost about \$100,000. A two-story brick addition to the finishing room was constructed last year at a cost of \$45,000. The plant now has 34,000 spindles and 950 looms and employs approximately 2,000 persons.

GASTONIA, N. C.—Much progress is reported in the modernization and expansion program in the 13 plants of Textiles, Inc. Four plants have changed over to long draft in both carding and spinning and several other plants are currently in the process of

being changed over to long draft. Additional machinery is being installed at many of the plants and a new warehouse, one of the largest in the chain, is being built to care for the needs of the Pinkney and Rankin units.

SALISBURY, N. C.—A \$30,000 addition to the offices of North Carolina Finishing Co. has been completed, making available 26,000 more square feet of floor space. The old office building also is being renovated and air conditioned.

ELBERTON, GA.—Plans have been announced for construction of additions to the Elberton Division of United Rayon Mills which will double the floor space of the plant. The new plant will join the present plant and both will be air conditioned.

MONROE, N. C.—Three large warehouses in the Camp Sutton area of Monroe have been sold to Bloom Mills, Inc., and will add 34,000 square feet of mill space to the present plants now in operation in the city by the Bloom interests. Installation of 100 looms in the newly acquired property is expected to get underway immediately. The machinery and other equipment is being moved to Monroe from Lancaster, Pa., where the Bloom company formerly operated plants.

PENDLETON, S. C.—Construction work is now underway on the new woolen and worsted finishing plant of Deering Milliken & Co., Inc., near Pendleton. The plant, to be 722 by 252 feet, is the fifth to be built by the firm in South Carolina in five years.

MARTINSBURG, W. VA.—The Berkeley Woolen Co. plant here, a subsidiary of Virginia Woolen Co., Winchester, Va., has suspended operations due to a lack of orders. The plant employed about 500 persons.

EXPERIMENT, GA.—Initial work has been started on the new 2½-story \$250,000 addition to the Lowell Bleachery plant here. The main floors of the addition will have a floor space of 18,000 square feet each and the basement 5,000 square feet. Most of the building will be used as a warehouse with about 10,000 square feet being used for manufacturing.

NEWTON, N. C.—Construction is in progress on a two-story addition for Newton Rayon Mill, a unit of Burlington Mills Corp.

MORRILTON, ARK.—Arkansas Cotton Mills, Inc., has assumed possession of the properties of the Morrilton Cotton Mills Co., concluding negotiations announced in May, and officials said that production will be changed from cotton duck to corduroy gray goods. The new owner, a subsidiary of the Crompton-Shenandoah Co. of Waynesboro, Va., purchased the plant for \$1,000,000. Emmett L. Batson, manager, said that equipment is being remodeled for use with the new product and that expansion plans involve installation of much new machinery and equipment. Eventual payroll will be about 400 employees. The mill was erected in 1927 and was closed for several years during the depression, reopening in 1934 when C. V. Hoke and associates, of Little Rock, bought the property from the bond-

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MILL NEWS

holders. It has been operated continuously by Mr. Hoke. Production during the war was utilized by the military services. Incorporators of the new company are Nightingale Richmond of Staunton, Va., Charles H. Merriman, Jr., of Charlottesville, Va., and Samuel V. Austin, Jr., of Waynesboro, Va.

ELKIN, N. C.—Employees of Chatham Mfg. Co. have contributed \$2,350.43 to the fund collected for the erection of the Central North Carolina Convalescent Hospital at Greensboro, N. C., which will treat victims of infantile paralysis.

OXFORD, N. C.—A production increase of 15 to 20 per cent is expected at Oxford Cotton Mill, a unit of Burlington Mills Corp., with the installation of new machinery. There is to be no addition to existing buildings; available floor space will be used for the new equipment.

SELMA, N. C.—A plant addition for Eastern Mfg. Co. has been completed and new long draft equipment has been installed in the carding department. Additional cards have been installed, and conventional draft spinning frames have been replaced with new long draft frames.

LA FAYETTE, GA.—Reports in trade circles state that sale of Linwood Cotton Mills, a division of Publix Shirt Corp. of New York City, is being contemplated by the management. The mill, which employs approximately 350 persons, utilizes 23,842 spindles

and 432 looms in the production of broadcloth and print cloth.

BOAZ, ALA. — It is reported in trade circles that the yarn mill here of Crescent Corp. is being offered for sale. The mill, which makes cotton yarns from 4s to 12s, has approximately 6,000 spindles.

PICKENS, S. C.—Contract has been awarded Triangle Construction Co. of Greenville, S. C., for construction of an opener room for Pickens Mill. J. E. Serrine & Co. of Greenville are the engineers.

NEW YORK CITY—Directors of Reeves Bros., Inc., at a meeting Aug. 9, declared a quarterly dividend of 25 cents per share and an extra dividend of 25 cents per share on the common stock, both dividends payable Oct. 1, 1948, to stockholders of record Sept. 3, 1948.

GREENVILLE, S. C. — McKoy-Gelerson Co. of Greenville has been awarded the contract for construction of a personnel building at Woodside Mills. Contract for installation of a complete fire protection system in warehouse and personnel building has been awarded Grinnell Co., Inc., Charlotte, N. C. J. E. Serrine & Co., Greenville, are engineers for the projects.

BELTON, S. C.—In recognition of 308,080 man hours worked without a lost-time accident, the weaving department of Blair Mills was recently presented the Certificate Award for Safety at a meeting held at the plant. M. P. Shirley, weaving department overseer, received the award in behalf of his personnel from A. Belton Cobb, district

engineer, American Mutual Liability Insurance Co. To qualify for such a certificate, an industrial plant or its departments must accumulate at least 250,000 man hours without a lost-time accident for 12 consecutive months.

GRANITEVILLE, S. C.—A total of 3,556,100 man hours worked without a lost-time accident was logged by three of 16 departments of the Graniteville Co. which were recently presented Certificate Awards for Safety Record by A. Belton Cobb, district engineer, American Mutual Liability Insurance Co. The three highest marks were scored by the weaving and maintenance departments, Sibley Mill, with 1,383,660 and 1,065,900 accident free hours, respectively, and the spinning department, Vaucluse Mill, with 1,106,540. The shop, weaving and carding departments of Vaucluse Mill were also rewarded. Other departments commended for their records were: spooling, spinning, cloth inspection and finishing, Sibley Mill; finishing and cloth inspection, Gregg Mill; spinning, Granite Mill; cloth inspection, Hickman Mill, and the colored group of the Warren Mill. These groups qualified for certificates by accumulating at least 250,000 man hours without a lost-time accident over periods of 12 consecutive months.

HANES, N. C. — Contracts have been awarded by P. H. Hanes Knitting Co. for the erection of 15 employee residences and an addition to the village school building. The firm, which has its main knitting plant at Winston-Salem, N. C., operates a 42,500-spindle yarn mill at Hanes.

For The Textile Industry's Use

EQUIPMENT — SUPPLIES — LITERATURE

General Dyestuff Issues Four New Circulars

General Dyestuff Corp., 435 Hudson Street, New York City, recently issued four new circulars to the trade, as follows: G-517-Fastusol Blue LRLA; G-518-Alizarine Blue SAP-CF; G-526-Indanthrene Printing Violet RR Extra Paste; and GDC-293-Preventol GDC Liquid. Southern branch of the firm is located in Charlotte, N. C., at 2456 Wilkinson Boulevard.

Bulletin Lists Standards For Hand Extinguishers

New standards for hand extinguishers on cotton process fires are announced in an illustrated bulletin recently published by the Associated Factory Mutual Fire Insurance Cos. It is based on a comprehensive study of cotton mill hazards and on recent fire tests that have provided more specific data than hitherto available on the relative value of various extinguishing methods.

For the characteristic quick-spreading fires over loose cotton surfaces, the most effective

combination was found to consist of dry chemical gas-actuated extinguishers backed up with water-spray from small hose. Water-spray is recommended for residual smoldering that frequently persists in loose cotton after the surface fire has been extinguished.

A new and unique feature is a protection table that lists in detail the particular fire hazards of the various processes, as well as the type and spacing of extinguishers recommended for each department of the mill. A copy of the bulletin is available on request to the Inspection Department, 184 High Street, Boston 10, Mass.

Carbide Booklet Is Guide For Organic Chemical Users

A new and revised edition of the booklet, "Physical Properties of Synthetic Organic Chemicals," has just been issued by Carbide and Carbon Chemicals Corp., a unit of Union Carbide and Carbon Corp. This 12-page booklet has been designed as a condensed guide for users of organic chemicals. It contains data on applications and physical properties for more than 185 synthetic or-

ganic chemicals. The material is presented in tabular form for ready and easy reference. Copies may be obtained without charge by writing to Carbide and Carbon Chemicals Corp., 30 East 42nd Street, New York 17, N. Y. Ask for Form 6136.

Report Charts Developments In Employee Publications

The fact that employee publications throughout the United States and Canada have reached an all-time record high of some 5,300 gives added significance to a new report, "Contents of 399 Employee Magazines," which has just been issued by the Policyholders Service Bureau, Metropolitan Life Insurance Co. This report—prepared as a service for companies which provide Metropolitan Group insurance programs for their employees—gives a good cross section of material which employee publication editors are using today in the effort to improve employee understanding and to bring about better co-operation among employees. "Contents of 399 Employee Magazines" is, as its title implies, an analysis of the

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contents of 399 employee magazines published by American and Canadian companies. It is the second report on the subject issued by the Metropolitan. An earlier study of the contents of 325 employee magazines was published in 1942. One of the features of the new report is a contrast in the contents of employee magazines five years ago with the material being used today. While the study was prepared primarily for Metropolitan Group policyholder companies there is a limited extra supply available. Executives may obtain copies by writing on their business stationery to the Policyholders Service Bureau, Metropolitan Life Insurance Co., 1 Madison Avenue, New York 10, N. Y.

Bullard-Clark Co. Policies Unchanged



Edward Jacobs Bullard, left, president and treasurer of The Bullard Clark Co. of Danielson, Conn., and Charlotte, N. C. (this new company is the result of a merger of four corporations of the Jacobs and Bullard interests previously announced); announces to the textile industry that the untimely death of his father, the chairman of the board of directors, W. Irving Bullard, will not change any policies or capital structure. "All of the voting stock is owned by the active management. Business continues to be good and we expect our modest company to produce and sell in excess of two and a half million dollars worth of merchandise during the calendar year of 1948."

New Bulletin Explains Federal Wage-Hour Law

Just off the press is a new, all-inclusive publication, "Child-Labor Bulletin No.

101," which in simple form presents the child-labor provisions of the Fair Labor Standards Act—the Federal Wage and Hour Law.

In addition to its listing of the provisions which set a general minimum age of 16 for employment subject to the Wage and Hour Law, the bulletin lists the seven hazardous occupations orders which establish a minimum age of 18 for employment in the occupations declared by the Secretary of Labor to be hazardous for young workers. The bulletin contains an easy-to-read question-and-answer section which is intended to guide employers in complying with the child-labor requirements of the law.

As a further aid, the bulletin calls attention to other Federal laws having child-labor provisions, and indicates to employers how they may obtain proof of age of the minors they employ. Copies of the new bulletin are available on request to the Wage and Hour and Public Contracts Divisions, U. S. Department of Labor, Washington, D. C.

Sales Office In Richmond Opened By Chain Belt Co.

Chain Belt Co., Milwaukee, Wis., announces the opening of a new district sales office at 2900 West Clay Street, Richmond 21, Va. Fred W. Taylor will be district manager of this office. Mr. Taylor was with Chain Belt Co. from 1936 to 1946 as a sales engineer and later district manager of the Atlanta district office. He then joined the Augusta (Ga.) Iron Works and rejoined Chain Belt this year. Chain Belt Co. manufactures conveying and power transmission chains, Rex construction machinery, sanitation, conveyor and process equipment.

Ace Floorsaver, New Item, Offered By Florida Firm

For maintenance of floors — scrubbing, polishing and waxing—the Ace Co. of 12-40 North Orange Street, Ocala, Fla., offers its new product, the Ace Floorsaver, in two models, S and T. Model T differs from

Model S only in that it is equipped with a solution tank and automatic or manually controlled feed to the brush.



Features of the new Ace Floorsavers are the low over-all height of 11 inches, properly balanced motor over brush for easier handling, and oversize heavy duty motor for long life and trouble free service. This new product is the result of over two years of designing and actual field testing, the company states. A companion line of Ace soaps and waxes is also available. Full information and prices will be furnished on written request to the company.

Mathieson Chemical Corp. Buys Government Plant

The War Assets Administration and Mathieson Chemical Corp. have concluded an agreement for the chemical company to purchase the ammonia plant and ammonia oxidation facilities at Lake Charles, La., it was announced Aug. 9 by Thomas S. Nichols, Mathieson president and chairman of the board. The purchase price was reported to be \$7,063,300. According to Mr.

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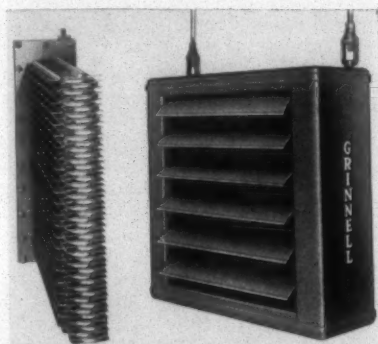
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Nichols, this move establishes Mathieson as a major producer of synthetic ammonia, which is today one of the important sources of nitrogen for the production of fertilizer and other nitrogen products. The move is also in line with Mathieson's policy of expanding its operations and broadening its field of chemical activity, Mr. Nichols stated.

Grinnell Co. Announces New Textile Thermolier

Answering the demand for a unit heater specially engineered to meet atmospheric conditions inherent in textile plants, Grinnell Co., Inc., Providence, R. I., announces the availability of its new Textile Thermolier in time for the 1948-49 heating season. This new textile unit heater is offered after thorough laboratory and practical field testing as an efficient answer to the requirement for a unit heater that can maintain its heat transfer capacity under adverse operating conditions in textile mills with a minimum of cleaning maintenance.



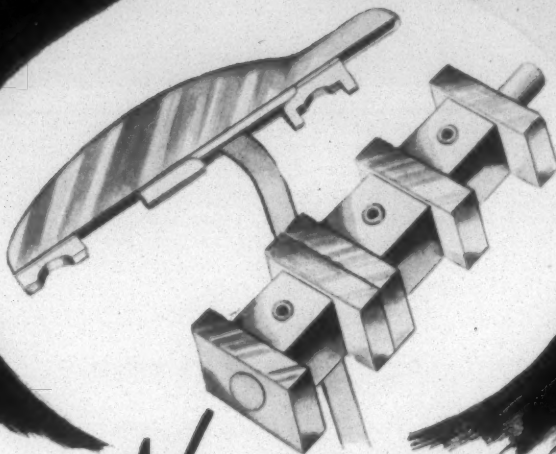
The conventional finned surfaces used in unit heaters that are subject to rapid clogging have been eliminated in the design of the Textile Thermolier and replaced with heat transfer surfaces of new design and having smooth contours. Removing lint, fly and dust from this new unit heater requires only a jet of air from a compressed air hose or from a portable electric hand blower and takes but a few minutes, the company claims. A high volume of air delivery provides a partial self-cleaning action which will maintain the heater's capacity for long operating periods. Complete clogging, common to multi-finned tube type heaters, is almost impossible with the new construction, it is claimed.

The new Grinnell Textile Thermolier is offered in one size with a heating rate of 113,700 Btu per hour using steam at two pounds pressure and entering air at 60° F. With steam at 25 pounds pressure this same unit delivers 143,400 Btu-s per hour. Any steam pressure up to 125 pounds can be used with corresponding increases in the heat transfer capacity. The Textile Thermolier incorporates the regular Grinnell Thermolier features including U-tube construction and the patented cooling leg.

The Textile Thermolier is put forward as a practical, economical piece of equipment for operation under textile heating conditions. It eliminates the need for costly construction and expensive maintenance required in systems which filter all incoming air to the heater. It provides ample heating capacity for the usual textile conditions and reduces cleaning maintenance costs to new

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FOR THE TEXTILE INDUSTRY'S USE—

low levels. Production line facilities and materials are available to assure delivery of Textile Thermoliers at the start of the 1948-49 heating season. The illustration above shows both the external and internal appearance of the new Textile Thermolier.

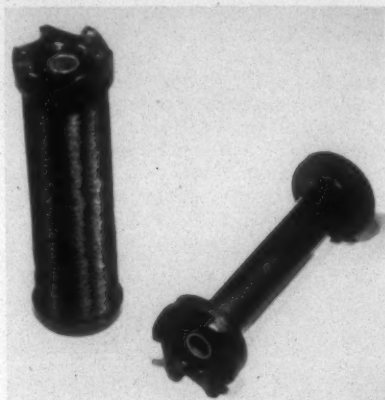
Oakite Announces New Sanitizing Material

A new, quaternary ammonium type of liquid germicide-disinfectant designed for all-purpose sanitizing, and for control of mold, algae and slime, has recently been announced by Oakite Products, Inc., New York. The manufacturer reports this new, more concentrated material, Oakite Sanitizer No. 1, is designed for use where quick, thorough bacteria-killing action and long-time sanitizing protection is desired, or for controlling slime and algae in recirculated water, stored water and humidifying equipment. Among the outstanding advantages said to be provided by this material are the

following. (1) It is stable: it may be stored for long periods without loss of germicidal potency. (2) It is non-corrosive: diluted as recommended, it is no more corrosive than water, is safe to use on metal and rubber surfaces. (3) Recommended solutions of Oakite Sanitizer No. 1 are relatively non-toxic: they do not contain caustic or strong alkaline salts, phenol, iodine, mercury or other heavy metals. (4) It has rapid and sustained germicidal activity: the film left on equipment and other surfaces by solutions of this material acts as a continuing germicidal agent, protecting surfaces until clear-water rinse is applied. (5) It has wetting and penetrating action: its surface-tension lowering properties enable it to penetrate all crevices of equipment and work surfaces. Oakite Sanitizer No. 1, the manufacturer states, is especially effective when used for controlling slime and algae in textile mill humidifying equipment. Readers desiring additional data concerning this new sanitizing agent may obtain copies of a specially compiled Service Report by addressing Oakite Products, Inc., 157 Thames St., New York 6, N. Y.

Develop Plastic Bobbin For Braiding Machines

The announcement by the Dillon-Beck Co. of Hillside, N. J., of a plastic bobbin designed for use on number one braiding machines marks one of the first successful uses of a thermoplastic material for textile machine equipment. It indicates that the industry may offer a vast new market for plastics. According to latest reports, over 100 million spinning bobbins of various types are now in use, with replacement requirements averaging over 15 million per year.



The new bobbins are being injection molded with ethyl cellulose—said to be an exceptionally tough plastic that has fine dimensional stability and resistance to impact over a broad temperature range, resists corrosion, and has a low moisture pickup. The material being used is a special formulation developed at the Parlin Plastics Laboratory of the Hercules Powder Co. and is being compounded by the Chemco Division of the Koppers Co. Thermosetting materials, including both molded and cast plastics, and also the synthetics, have been tried in similar applications in the past as designers of textile machine equipment sought a more durable and longer-lasting material to replace conventional hardwoods used in bobbins. None, however, could provide the toughness and resistance to impact that was needed.

The exceptional toughness of the ethyl cellulose material is indicated by the fact that it can resist the tremendous compression of tightly wound nylon yarn, while other materials will crush unless an inner support of metal is provided to prevent

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crushing. The smooth, long-wearing plastic finish will not chip or peel and the bobbins are shatter-proof. When demonstrating samples, Dillon-Beck invites customers to bounce the new bobbins on a concrete floor or against a brick wall to prove their durability.

Another feature of the new hobbin is the resistance to wear on the ratchet gear which is an integral part of the one-piece plastic molding. According to the manufacturer, a great percentage of failures in old-type bobbins resulted from breakage at this point. The broad range of through-and-through color available in the plastic bobbins will provide color identification for various styles and sizes when the full line is completed. Bobbins are provided with bronze bearings to provide permanent precision alignment throughout the full life of the bobbin.

Plant At Sanford, N. C., Acquired By Saco-Lowell

Saco-Lowell Shops, Inc., of Biddeford, Me., Aug. 12 announced the purchase of the land, buildings and equipment of the Edwards Co. of Sanford, N. C., a plant well adapted to the manufacture of textile machinery. It is expected that a relatively short period will be required for some rearrangement of facilities and that thereafter the unit will be producing Saco-Lowell products. The Edwards Co. manufactures air conditioning equipment, pumps and special machinery.

This move on the part of Saco-Lowell brings together one of the world's largest builders of textile machinery and an organization that during World War II achieved and maintained an outstanding record as a producer of high precision airplane parts, being awarded the coveted Army and Navy "E" five times. It is Saco-Lowell's intention to operate the newly-acquired plant under the direction of the same local management that was responsible for so notable a record.

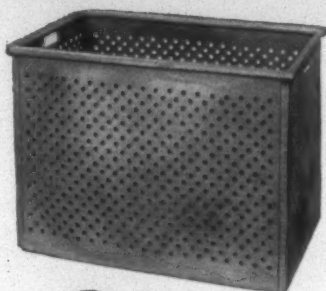
This manufacturing unit in North Carolina will place Saco-Lowell in a position to better serve its customers, so many of whom are located in the Southern states, and will prominently identify the company with the expanding industrial South.

Saco-Lowell recently leased the second largest structure in the West Yard of the former New England Shipbuilding Corp. at South Portland, Me. A company official said the building's 80,000 square feet of space would be used for general storage purposes in connection with operations at both the Biddeford plant and the Thompson's Point branch in Portland.

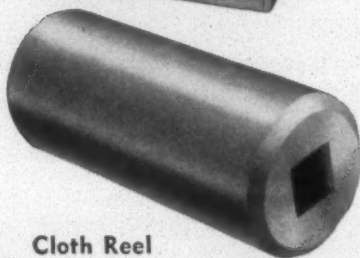
Sinclair Has New Line Of Spindle Lubricants

Improved spindle lubricants that cut bolster wear as much as two-thirds have been made available to the textile industry by Sinclair Refining Co. Service-tested in spindles on spinning frames in regular production operation, the new oils, which bear the names of Lily White Oils AX, BX and CX, are said to have proved superior to long accepted uncompounded mineral oils. Among improved qualities are oiliness value and stability in usage. Commenting on the new lubricant, a Sinclair lubrication engineer stated, "Performance results disclose

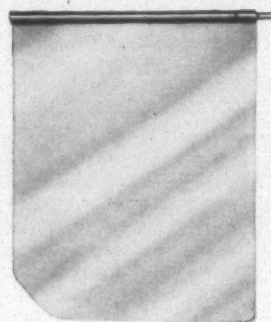
CUT COSTS WITH *Stainless Steel*



Doffing Boxes
and Dye Beck Reels



Cloth Reel



Separators

TEXTILE, dyeing and finishing plants can cut deeply into operational costs by replacing ordinary metal parts with stainless steel. Stainless steel is particularly effective in preventing metallic contamination or to keep colors running true in successive runs. Reduced repairs, expense of frequent changes and adjustments, resistance to corrosion . . . soon repays initial costs.

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reduced friction and wear, with less residue accumulation in spindle bases. This naturally contributes to extended spindle and bolster life. Also reduced maintenance and lower power costs are obvious practical benefits."

SKF Starts Production Of New Textile Pulley

Start of production on a new type of anti-friction tape tension pulley designed to aid the nation's textile mills in the spinning of cotton and worsted yarns was announced July 26 by SKF Industries, Inc., Philadelphia. Richard H. DeMott, vice-president of the ball and roller bearing firm, said manufacturing schedules call for substantial production of the pulleys against a heavy backlog of orders. Volume deliveries are expected to be made soon, he said.

By maintaining uniform tension on tapes which drive spindles, anti-friction tension pulleys play an important part in the output of high-quality yarn by keeping spindle speeds constant, the company claims. An outstanding feature of the pulley, which can be mounted on all types of spinning frames without the need for special brackets, is the use of aluminum for the four-inch shell and shields. The pulley is mounted on a ball bearing having a stationary shaft and is supported by plastic blocks which fit spinning frame brackets now in use.

Mr. DeMott pointed out that ball bearing tape tension pulleys, first developed by SKF,

eliminate frictional "drag" and reduce spindle shutdowns due to tapes slipping from dragging pulleys.

Daniels Products Are Described In Brochure

Baskets, hampers and trucks are illustrated and described in a new brochure offered to the trade by C. R. Daniels, Inc., manufacturer of canvas items. Units discussed are widely adaptable to factory production and mill materials handling in textile industries. Brochures may be obtained from C. R. Daniels, Inc., Daniels, Md., ask for Catalog No. 65.

New Belting Plant Is Planned By Goodrich

A multi-million dollar plant for the manufacture of industrial rubber belting will be built in Akron, Ohio, by The B. F. Goodrich Co., it is announced by T. G. Graham, vice-president. Representing the first major expansion of production facilities in Akron by B. F. Goodrich in many years, the new plant will be erected only a few feet from the site of the original little plant built by Dr. B. F. Goodrich in 1870. Four factory buildings will be razed to permit construction of the new plant.

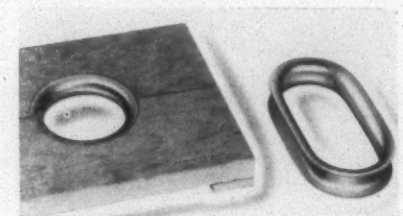
The new industrial products plant will contain 150,000 square feet of floor space. The unusual height and heavy construction will require the use of more than 2,000 tons of structural steel and the building will house equipment especially designed for the

manufacture of various types of belting. Work will be started during August although no general contract has yet been awarded, Mr. Graham said.

B. F. Goodrich, one of the world's largest producers of belting of all types has been engaged in this field of manufacturing for nearly 50 years and is a pioneer producer of conveyor belting.

Cite Superiority Of Stainless Steel Poteyes

Riggs & Lombard, Inc., of Lowell, Mass., producer of the Fleet Line of finishing equipment, manufactures the stainless steel poteyes, illustrated below, which it claims to be superior to the commonly used porcelain type on installations such as batch and other washers, fulling mills, as leads for scutchers, etc.



They support this claim with actual "in use" results which have proved that stainless steel poteyes do not break or crack, have low friction and minimum abrasion, are resistant to chemical action, and the fact that steel cannot be broken by swelling wood as can porcelain.

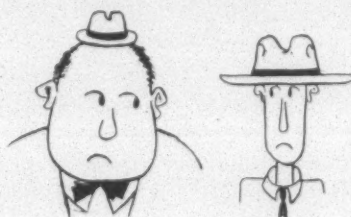
R & L stainless steel poteyes come in a wide variety of standard sizes, round and oval. Full information can be had by writing direct to Riggs & Lombard, Foot of Suffolk Street, Lowell, Mass.

Wash Fastness Of Direct Dyes Helped By Cuprofix

A new group of Cuprofix colors and Cuprofix after-treatment introduced by Sandoz Chemical Works is reported to improve the fastness of cellulosic fibers to home laundering, hot wet pressing and perspiration. Mill tests on package dyeing of yarn intended for a wide variety of purposes ranging from cotton hose and sport shirts to rayon suitings, show a wash fastness rating of four to five when certain direct dyes are treated with Cuprofix as compared to two to three rating without Cuprofix. The reports show that there is no migration of color while in the wet state. In many cases, the results are said to be greatly superior to diazotized and developed colors. And in certain cases, light fastness has shown improvement.

Cuprofix is a cation active resinous compound to be used with certain colors indicated as Cuprofix colors. It is a pale greenish powder easily dissolved in hot water. The process calls for a short after-treatment with one to three per cent of Cuprofix at a temperature of 160° F. following the usual procedure for direct colors. After the yarn has been rinsed well to remove all traces of salt or other anion-active materials, the previously dissolved Cuprofix is added to the cold fresh bath, the temperature is raised to 160° F. and run at this tempera-

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ture for 30 minutes. Dyestuffs which are designated as Cuprofix colors include the following: Rubinoles BL, Yellow GLE, Blue LUL, Blue RUL, Blue 2GL, Blue 4GL, Violet 2BL, Navy Blue SL, Brown GL, Black C Conc., Black OB Conc., Grey R and Red 5BL. Further information about Cuprofix may be obtained by addressing Sandoz Chemical Works at 61 Van Dam Street, New York 13, N. Y.

Record Control System Presentation Available

"Records That Control Quality Control" and a companion film, "A Game of Chance," are combined in a 35-minute clinic presentation featuring a practical discussion on quality control records in manufacturing. These new soundslide films give a case history on how a user of a Standard Register system of record control reduced scrap rejects 23 per cent. Shown are the weaknesses common to many inspection report systems causing mixups of rejected material with good work passing through production, repeated inspection and reporting of the same lots of work, double payment for labor on the same lots of material, shortage of material at assembly, and distorted reports to management. The film demonstrates a system that provides control of men, material, and machines through control of every original record written. It also shows how management can be sure of receiving accurate reports on the effectiveness of the quality control program. The clinic presentation is made without charge by representatives of Standard Register Co. as a basis for open discussion of quality control principals and problems dealing with basic records and systems of control. For further information write Standard Register Co., Dayton 1, Ohio.

Fafnir In New Atlanta Office And Warehouse

Fafnir Bearing Co. of New Britain, Conn., has finished construction of a new warehouse and office located at 245 Piedmont Avenue, Atlanta 2, Ga. Branch Manager A. G. Laughridge and his staff moved during August into the new structure, which provides quarters much more ample than those previously occupied in Atlanta. In announcing the move, Mr. Laughridge predicted the enlarged facilities will result in better services to the entire southeastern section. "Fafnir policy," he said, "calls for supplying distributors from strategically located warehouses; with these new quarters it will be possible to maintain much more complete stocks than at any time in the past, and at the same time to extend engineering and sales services." Fafnir now maintains 18 warehouse stocks and 21 branch offices for sales and engineering in major cities of the country.

Veeder-Root Series 1260 General-Purpose Counter

Newest and most newsworthy event in counting devices for many years past is said to be this radically modern design just released by Veeder-Root, Inc., Hartford 2, Conn. A mechanically operated counter



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OR maybe you're the type who prefers to "talk turkey." In any event it adds up to the same thing when it comes to that all important little gadget we call a heddle.

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Let us prove our statements on your looms. Just write, wire or phone for a mill-experienced Pioneer representative.



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which is adaptable to any standard drive—from either side—the new Series 1260 features a rich, two-tone "uniform" in gray crackle finish. The light gray band up and over the top of the counter gives natural emphasis to the easy-reading line of six black figures which stand up in bold contrast. Built into a machine or product as standard equipment, this handsome counter-face will prove a decorative asset, as well as

a practical extra utility that arouses new customer-interest and increases sales. Among other advantages of a built-in counter is that of definite proof of the performance-guarantee of the product into which the counter has been built. And in service, the *direct* readings supplied by the counter reduce operator-fatigue, and prevent many of the old errors formerly made with graduated dials. The new Veeder-Root Series 1260 reset general-purpose counter is adaptable to an unlimited range of use. And its slim lines

and trim dimensions make it easy to fit into the design limitations of any type of product.

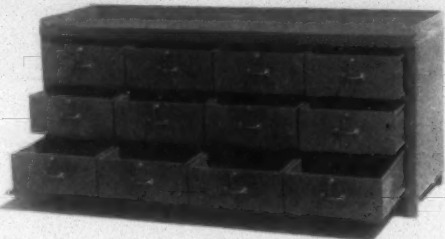
Uses Of Ion Exchangers Explained To Industry

One of the most complete and graphic roundups of ion exchange technology and information yet available has just been published in a 24-page booklet by Resinous Products & Chemical Co. of Philadelphia, Pa. Publication of this data was prompted by the recent development of four new adsorbents, members of the Amberlite family of synthetic resins, which open up altogether new concepts of ion exchange performance. A description of how the process works, chart and tabular presentations of operational data, concise application information, a glossary of 85 terms and a complete bibliography (more than 200 titles) make the publication a virtual textbook of a process that sweeps broadly across the whole chemical industry.

One effective presentation, for example, is a two-color projection which shows three-dimensionally the operating capacity of each of the six Amberlites in related to the pH of the media. The manner of presentation is striking; the information it presents, even more so, for no longer can relative acidity or alkalinity limit the usefulness of ion exchange. Starting with a history of ion exchange, the publication tells in readable text and with "animated" illustrations what ions are, how ion exchange works, and what major processes it implements. Then it describes the properties of the new Amberlites, and outlines the fields of purification, isolation, and separation in which they will prove most useful, are outlined. Detailed characteristics such as the density, particle size, physical and chemical stability, flow-rate and backwash characteristics of the Amberlites are presented tabularly. Another table gives the suggested operating characteristics for each exchanger—pH range, regeneration concentration, exchange capacity, rinse requirements, etc.

In brief sections, the work then reviews scores of operations in which ion exchange

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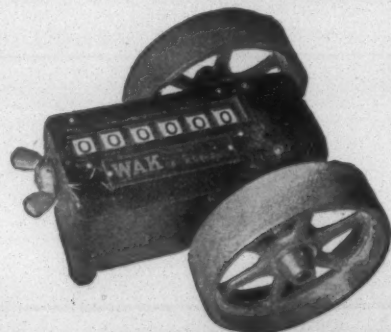
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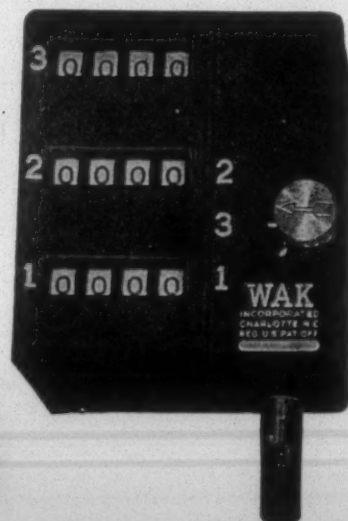
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resins have distinguished themselves, such as in the purification of water and the removal of contaminants. Mixed-bed deionization, another phenomenal "first" which the new exchangers will contribute to the process industries, is explained. Then a two-page glossary and a four-page bibliography double the booklet's value as a reference.

This represents the first time in the eight-year history of the company publication, *The Resinous Reporter*, that an entire issue has been devoted to a single type of product. Copies are available from the company at 222 West Washington Square, Philadelphia 5, Pa.

Technical Bulletins On Dial Scale Applications

Five new three-color technical bulletins—totaling 56 pages of data, diagrams, selection advice and practical application information on dial scales—have just been published by the Yale & Towne Mfg. Co., Philadelphia Division, and are offered without charge to production managers, traffic men and others throughout industry who rely on high-speed accurate weighing to measure and control the flow of goods.

The most outstanding feature of the counting scale bulletin (P-714G) is an entire chapter on "How to Select the Right Scale," complete with tabular information and a discussion of proper ratio specification. Platform styles and sizes, dial capacities, and special methods of application are discussed. Various methods of counting, with examples, are set forth. Six photographs, nine tables and eight drawings offer complete specification guidance. Other sections describe the "unit weight cabinet," the new Magnetrol mechanism, and proper pit construction methods.

The bulletins on portable platform scales and bench scales (P-714D and P-714E) also emphasize proper selection of the right model for the right job. They include, further, photographic illustrations of the many industrial uses of these scale types. Information on the actual installation illustrated gives idea-clues for others to apply. In all, these two bulletins offer ten tables, 24 photographs, and three dimensional drawings. The outboard bearing construction to reduce wear and prevent platform tipping is explained.

Bulletin P-714C on dormant platform scales lays great stress on the new outboard bearing principle (fully illustrated) and other special design features to prevent shock and eccentric loading from affecting the lever system. Complete dimensional, capacity, and shipping weight data are given on 242 different models in six classifications—both self-contained and semi-self-contained, with and without tare-and-capacity beams or unit-weight cabinets. The chapter on "How to Select the Right Dormant Platform Scale" is especially worthwhile.

The bulletin on crane scales (P-714K) describes units suitable for loads up to 25 tons—both of the standard and of the close headroom types. Dimensional drawings and capacity tables are included; as is helpful shop data on U-bolt suspensions and load hooks. The safety devices incorporated in Yale crane scales to prevent any possibility of dangerous drops of heavy loads are ex-

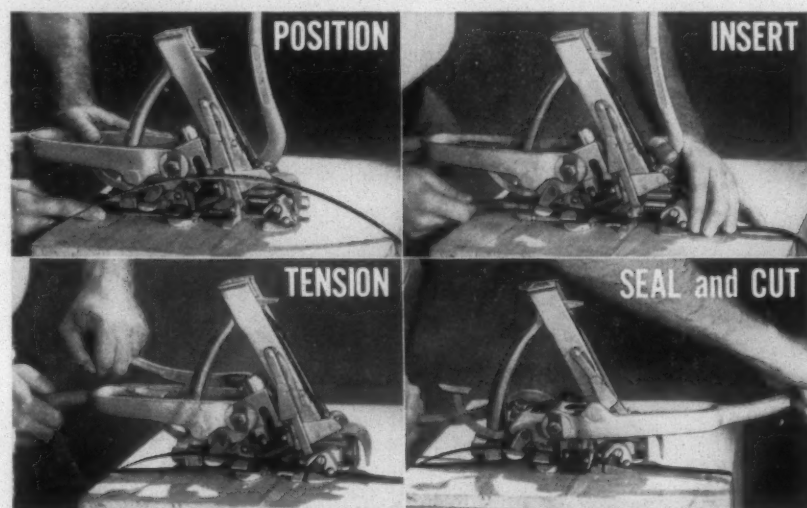
plained. Again, complete specification information is presented in tabular form with liberal diagrammatic and pictorial illustration.

Copies may be obtained from R. F. Miller, Yale & Towne Mfg. Co., 4530 Tacony Street, Philadelphia 24, Pa.

Goodyear Tire & Rubber Co. has announced the establishment of a Chemical Division to handle the company's rapidly expanding manufacture and sales of synthetic rubber and its combination with other raw chemicals. Herman R. Thies, present manager of the plastics and coatings department, will head the new division. W. H. Aiken, assistant department manager, will

assume a similar position in the new division. This new division has been created from the plastics and coatings department of the previously called Chemical Products Division, now known as the General Products Division.

The new chemical division will handle all chemical raw material sales for Goodyear Tire & Rubber Co. In line with the change all personnel of the plastics and coatings department will become members of the Chemical Division staff. Creation of the Chemical Division makes it possible for Goodyear to offer specialized technical facilities in research and development to manufacturers, large and small alike, who use Goodyear chemicals in their end products.

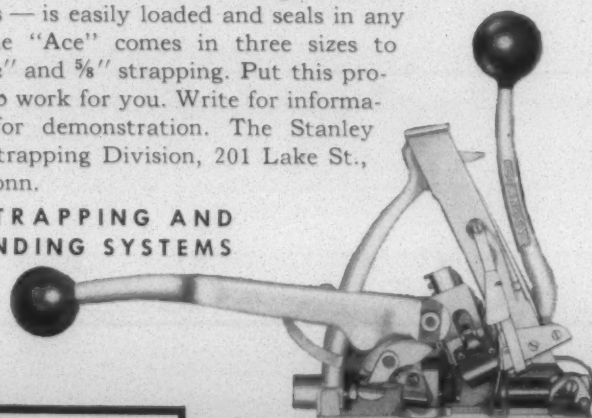


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Butterworth's Rayon Pot Spinning Machine

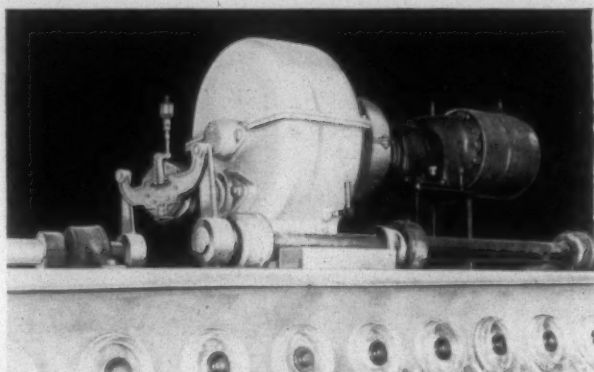
THE rayon division of H. W. Butterworth & Sons Co., of Philadelphia, Pa., builder of textile finishing machinery, has announced that numerous refinements and features have been incorporated in the post-war Butterworth pot spinning machines. The latest models, of the 100-spindle type, which are being built and shipped to rayon manufacturers both in the U. S. and in such countries as Chile, Mexico and Colombia, Peru and Egypt, are equipped with numerous modified features including a redesigned traverse system. The patented traverse control mechanism is an outstanding contribution to the development of high speed spinning.

Utilizing the firm's modern experimental facilities, Butterworth engineers have made special efforts to keep pace with advances made in textile chemistry. A great deal of study and experimental work preceded the design changes on the traverse system accomplished during the period from the end of World War II.

The outstanding feature of the Butterworth rayon pot spinning machine is the traverse system. It is generally agreed that the traverse system is the heart of the pot spinning machine inasmuch as it is solely responsible for the building of firm cakes of good density and contour. According to careful comparisons, results indicate that the Butterworth traverse systems will operate faster than conventional traverse systems on other machines.

Early in the 1930s, Butterworth engineers set out to develop a traverse drive that would fulfill numerous demands of a spinning machine operating at high speed. Among the

factors to be considered were: good operation at high speed; minimum vibration from the traverse motion; flexibility of stroke characteristics; easy adjustment of length of stroke and height of stroke; minimum lost time for maintenance.



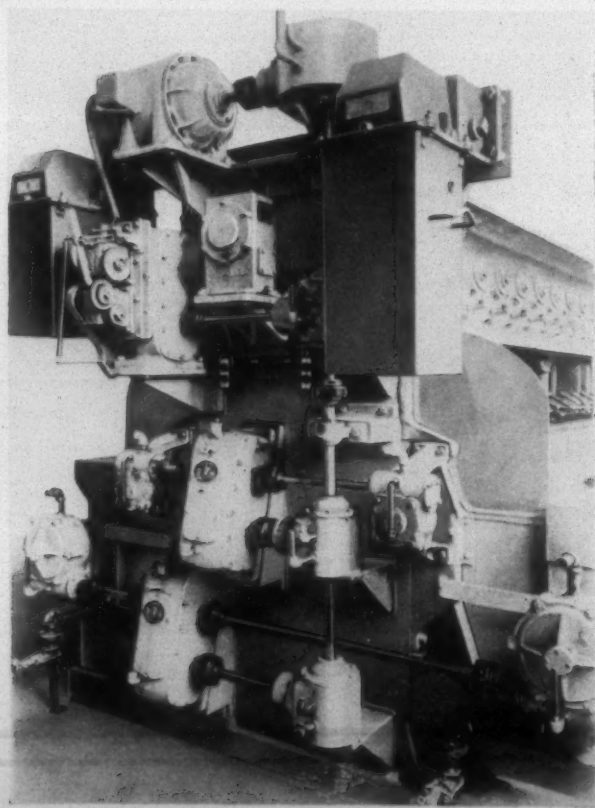
The fast traverse drive builds cakes of good density with an open wind suited for conventional washing and treating.

After many experiments, Butterworth developed the traverse drive covered by United States Patent No. 1,968,026. This drive is unique in that it has no cams and operates smoothly up to one and a half times the highest speed obtainable with cam traverse drives. This fast traverse builds cakes of good density with an open wind suited for conventional washing and treating. With high-speed operations, the tendency for bands of ribbons to form in the cake are reduced to a minimum. Vibrations are reduced since there are no cam reversals to contribute to them.

Butterworth engineers consider as most important the fact that different spinning conditions such as denier, traverse speed and pot speed change the reversal characteristics of the traverse stroke. Conditions such as these affect the lag between the funnel tip and the laying on point of the cake. Therefore different stroke characteristics are called for in diversified spinning conditions. Butterworth's traverse drive from this point of view is the most flexible of any known since, with slight adjustment, a variety of stroke characteristics can be obtained. Design features in the control unit enable quick adjustment to give stable cakes, uniform in contour under any set of spinning conditions. No extra parts are necessary for these adjustments.

Precision speed-controls on the Butterworth spinning machines are an example of progressive engineering research in developing pot spinning machines to produce the finest quality rayon. The drive of the Butterworth pot spinning machine is novel in its simplicity of design, compactness of construction, and in the precision operation of its controls.

Many advantages of the Butterworth drive over standard gear train are claimed. In addition to decided gain of uninterrupted spinning, the infinite speed regulation over a wide range has an advantage in flexibility that is most important to spinning high quality rayon. The drive through Link-Belt P. I. V. is considerably smoother than through any gear train. Upper godets, lower godets and viscose pumps are all driven from the main drive motor through spiral bevel gear boxes and Link-Belt P. I. V. speed control units. These P. I. V.'s give the godets and pumps in-



Drive end of Butterworth's rayon pot spinning machine.

finite speed variation over wide limits without the spinning delays encountered with change gear arrangements. Speed adjustments are made while the spinning machine is running by regulation of the P. I. V. handwheels. This regulation allows for up to 100 per cent stretch between godets and a range in pump speed from 15 to 90 r. p. m. Spinning speeds range from 50 to 100 meters per minute.

"Spinning compensators" have become an important feature on modern spinning machines. For this reason, the upper godet compensator on Butterworth machines has also been given attention by engineers. In rayon pot spinning, the tension on the thread being drawn into the pot decreases as the doffing period progresses. This decrease in tension is a result of the cake building up, since the centrifugal force acting on the end of the thread diminishes as the inside diameter of the cake gets smaller. The tension decrease changes the denier over the doffing period, giving a slightly heavier denier thread at the end of the doffing period than at the beginning.

As rayon quality assumed greater importance, it became

apparent to rayon producers that this change in tension had to be compensated for if the deniers were to be held within very fine limits, and the dye index controlled for a given quantity of rayon yarn.

On Butterworth spinning machines, the upper godet wheel is made to increase in speed progressively through the doffing period, thereby increasing the tension on the thread to the upper godet at a rate equal to the decrease in tension on the thread going into the pot. Thus the thread is subjected to the same over-all stretch and the denier and dye index controlled over the doffing period.

Other features included in Butterworth machines are the funnel bracket, made of acid resistant material, and designed to give rigid funnel support free of vibration at even the highest traverse speed; upper and lower godets, provided with either smooth or corrugated face as required, with each unit driven smoothly by spiral gears from a drive shaft located inside the lead covering of the machine.

The Butterworth Pump bracket is designed to take the Zenith metering pump. This pump operates with com-

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{ No stretch. No slip. Uniform operation plus long life insure continuous, more efficient production.

{ Absorb impact shock and vibration. Reduce building and machinery maintenance. Scientifically constructed of specially woven cotton duck impregnated with rubber. By using Fabreeka cement lag screws or bolts can be eliminated.

{ Specially designed for minimum stretch, smoothness of operation and long life. Can be furnished in wrapped endless construction or with stepped splices, or in roll lengths.

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The (SP-30-40) for use with either 30 or 40 watt lamps
The (SP-100) for use with 100 watt lamps

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mendable efficiency. Spinning motors are self-aligning and self-lubricating. Motors are controlled in groups of six by reversing type switches which stop motors within a matter of seconds. Since switches are operated by a foot lever, the doffer has both hands free to begin doffing operations immediately. Additional features which are available include Plexiglas doors, automatic lubrication systems and duct systems arranged to suit plant conditions.

Demand for Butterworth rayon spinning machines has been world wide with orders for machines arriving from numerous foreign countries. Some of the largest rayon manufacturers in the country are included among the firms which have purchased Butterworth machines. Today, rayon producers all over the world are looking toward America for advances in synthetic fiber manufacture. H. W. Butterworth & Sons Co. recognizes the importance of its role and is constantly seeking to create machines with greater flexibility and simplified operation to help the rayon industry maintain its growing volume of production.

Georgia Operating Executives Meet Oct. 16

Plans for the Fall meeting of the Textile Operating Executives of Georgia have been announced by Secretary-treasurer Robert W. Philip of Callaway Mills Co., LaGrange. The meeting will be held Saturday, Oct. 16, in the Chemistry Building on the Georgia School of Technology campus in Atlanta. The football teams of Georgia and Auburn play in the afternoon following the meeting.

Questionnaires on slashing and weaving have been mailed to all member mills, which have been requested to furnish various information on mill operations and return it to Mr. Philip by Sept. 9. Ten questions are devoted to slashing, and 12 to weaving.

Book Describes Southern Textile Communities

A book, *Southern Textile Communities*, written by Dr. William Hays Simpson of the department of political science of Duke University and published by the American Cotton Manufacturers Association, is just off the press and is being distributed to members of the association and public and school libraries. Dr. Simpson, also the author of *Life in Mill Communities* and *The Small Loan Problem of the Carolinas*, explains in the preface that he was invited by the association to make a study of life in cotton mill communities in the Carolinas, Georgia and Alabama, and that while the organization, which is made up of executives of Southern textile mills, met the costs of the study, he had enjoyed absolute freedom both in the development of the study and in the conclusions reached.

In a foreword, the late Dr. W. P. Jacobs, president of the association when the study was made and until his recent death, said that he had long been impressed with Dr. Simpson's deep and sincere interest in the welfare of the Southern textile worker, his family and his community, and that "with full freedom of action and decision," Dr. Simpson had gone personally into the field, "gathered his facts in his own way and reached his own conclusions, that the study might be used not merely to bring the facts into their true light, but also that his study may lead the industry to the correction of any shortcomings which may have been discovered."

After a chapter on the historical background of the

Southern industry, in which it is brought out that although industry plays an important part in improving the population, both economically and socially, it was not until after the turn of the 19th Century that much progress was made in the development of the mills, the author goes into a discussion of the mill village. Explaining that the cotton mill village originated as a social and economic necessity and not as a paternalistic intention on the part of the manufacturer, he declares that from the very beginning mill management has taken great interest in developing the educational, recreational and religious facilities of the communities and that, although the homes in these villages were, at first, drab and unattractive, they have steadily improved through the years. He describes the houses, generally, as solidly built and says that shrubbery is plentiful and streets are paved and carefully laid out. Occupants are usually furnished water and electricity free of charge or at greatly reduced rates and while rents charged vary, most of the mills included in the survey collect from 25 to 50 cents per room per week.

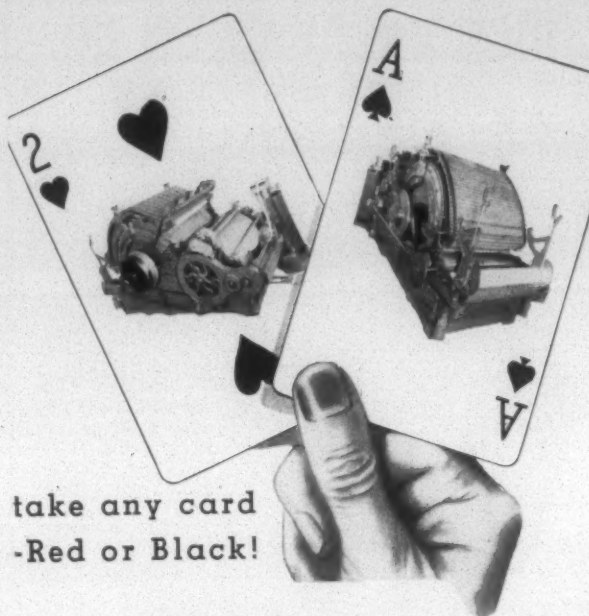
The information used in the book is a compilation of replies of 125 mills to questionnaires sent to all mills belonging to the association and of the results of personal calls to mills considered by Dr. Simpson as sufficiently varied in type to be representative of the industry.

The long-standing interest of the mills in education is stressed in a chapter which tells of large sums spent in helping to build or equip schools and of the assistance mill management has given in the development of night schools, nursery schools, and vocational schools. That mill owners have from the earliest days co-operated in the building and maintenance of churches is also brought out by Dr. Simpson. Donations of electricity, fuel and other such items to churches are reported as the author gives the results of his study.

In regard to health matters, Dr. Simpson found the mill owners have for many years been active in the promotion of sanitation and other health-assuring conditions, that many of the mills provide doctors and nurses for their employees, that some have constructed infirmaries and hospitals, that others provide dental and X-ray equipment, that instruction in health and first aid is considered an important part of the program of many mills. He says that better health facilities are found in counties where there are textile mills than in others, a condition which is largely due to the emphasis industry places on health, plus the additional funds made available to local governments through taxes collected from the mills.

That people who live in the communities have little opportunity to get bored is indicated in the fact that so many of the mills have made possible community houses or Y. M. C. A. buildings where many facilities for recreation are available for the residents of the village. Kindergartens, libraries, gymnasium classes, and club facilities were reported by a number of the mills.

Mill stores have for some time been a controversial issue. According to Dr. Simpson, the coming of the automobile, which makes it possible for mill employees to shop in neighboring towns, has made the mill store the exception rather than the rule. However, he learned in his survey that where the mill stores remain in operation the prices charged are in line with those of competing stores and that no employees feel any compulsion to trade in the mill stores. The



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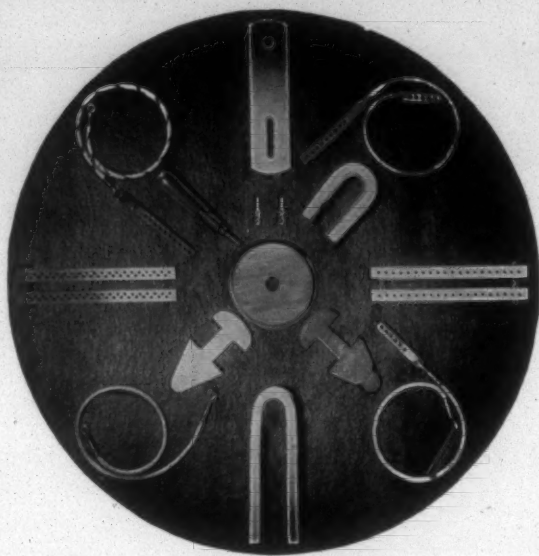
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fact that they are conveniently located and extend credit as well as carry a good variety of merchandise is believed by Dr. Simpson to be responsible for their business. He has found, however, a decided trend away from the operation of these stores in recent years.

The effort of some of the mills to protect employees from loan sharks by operating loan funds which charge little or no interest is described by the author. He stresses the need for passage of adequate loan laws in the Carolinas, Georgia and Alabama to relieve the loan shark problem.

Spinner-Breeder Conference Program Outlined

The program this year for the Fifth Spinner-Breeder Conference, scheduled for Sept. 20-22 at Greenville and Stoneville, Miss., will emphasize the cotton breeder's contribution to quality cotton. Invitations were mailed out early this month by the Delta Council, which sponsors the annual event.

With Senator George B. Walker of Stoneville presiding, the conference will begin Sept. 20 at 10 a. m. in the Gold Room of the Hotel Greenville. Welcoming addresses will be made by Governor Fielding L. Wright of Mississippi and W. T. McKinney of Anguilla, Miss., president of the Delta Council. The response will be made by Dean Malcolm E. Campbell of the North Carolina State College School of Textiles. Dr. George Wilds, president of Coker's Pedigreed Seed Co., Hartsville, S. C., will discuss "The History and Accomplishments of Spinner-Breeder Conferences," and Early C. Ewing, agronomist for the Delta & Pine Land Co. at Scott, Miss., will speak on "The History of Cotton Varieties."

Dr. H. W. Barre, head pathologist in charge of the Bureau of Plant Industry (U. S. Department of Agriculture) at Beltsville, Md., will preside at the afternoon session Sept. 20. Speakers include: Dr. J. W. Neely, cotton breeder for Stoneville Pedigreed Seed Co., "ABCs of Cotton Breeding;" Posey Brown, cotton breeder for Bobshaw Seed Co. at Indianola, Miss., "Breeding for Fiber Quality;" Dr. C. H. Rogers of Coker's Pedigreed Seed Co., "Breeding for Wilt Resistance;" and James B. Dick, agronomist for the Bureau of Plant Industry at Stoneville, "Breeding for Improved Grades." This session will be followed by a tour of the Bobshaw Seed Co., and Monday evening the Stoneville cotton merchants will be hosts at a cocktail party and supper.

Presiding over the morning session Sept. 21 will be C. C. Smith, now executive assistant for the Staple Cotton Cooperative Association at Greenwood. Papers will be delivered by C. P. Owen, president of the Mississippi Seed Improvement Association, Robinsville, "Lint Identification in Mississippi;" Otto Goedecke, Otto Goedecke Cotton Co., Hallettsville, Tex., "Selecting and Merchandising Quality Cotton;" Percy S. Howe, president of American Thread Co., New York City, "Report on Long-Staple Cotton;" and Robert B. Evans, in charge of survey and appraisal work for the Southern Regional Research Laboratory, New Orleans, La., "Cotton's Increasing Competition from Synthetic Fibers and Paper—What Breeders and Spinners Should Be Doing Towards Meeting It." A tour of gins will precede a noontime barbecue sponsored by the Mississippi Seed Improvement Association and the Delta Council.

Tuesday afternoon will be devoted to tours of Stoneville Pedigreed Seed Co., the Delta Branch Experiment Station and the Federal Fiber and Ginning Laboratory. Delta cotton

breeding firms will give a banquet that night, to be followed by a Cotton-Textile Institute style show.

A panel discussion on "Problems of Quality Control from Breeder to Spinner" is scheduled for Wednesday morning, with Dean Campbell as moderator. On the panel will be H. Arrowsmith of the British Raw Cotton Commission. A tour of the Delta & Pine Land Co. in the afternoon will conclude the program.

Total accommodations are being handled by the Delta Council office, which has requested that all reservations be made by Sept. 10.

Industrial Trainers Group Holds Meeting

The Carolina Industrial Trainers Association met for its second quarterly meeting of the year recently at Pacolet (S. C.) Mfg. Co. Harvey Frick, training and safety director at Mathews Mills, Greenwood, S. C., president of the association, presided at the meeting. S. C. Thomas of Graniteville (S. C.) Mfg. Co., secretary, assisted.

Guest speaker at the meeting was Leonard R. Booker, state teacher trainer, Clemson College, who discussed the development and growth of industrial training. Mimeographed copies of Mr. Booker's remarks were later furnished members of the association. Actual plant benefits of the training program were described by C. T. Holland, assistant superintendent at Pacolet Mfg. Co.

The next meeting of the association will be held the latter part of September, the date to be announced later, with Abbeville (S. C.) Mills Corp. as host. The meeting will be held either at the Abbeville plant or at one of the firm's plants at Union, S. C. The program committee for the coming meeting consists of Addison B. Carwile of Abbeville Mills Corp., Marvin Self of Drayton Mills, Spartanburg, S. C., and Richard Hartman of Riegel Textile Corp., Ware Shoals, S. C.

Cotton Usage In Book Bindings Increases

More Americans are reading more books. The National Cotton Council gave new confirmation to this fact recently when its market researchers announced that use of cotton in book bindings increased from 22,750 bales in 1939 to 35,690 in 1946, a gain of nearly 53 per cent during the eight-year period.

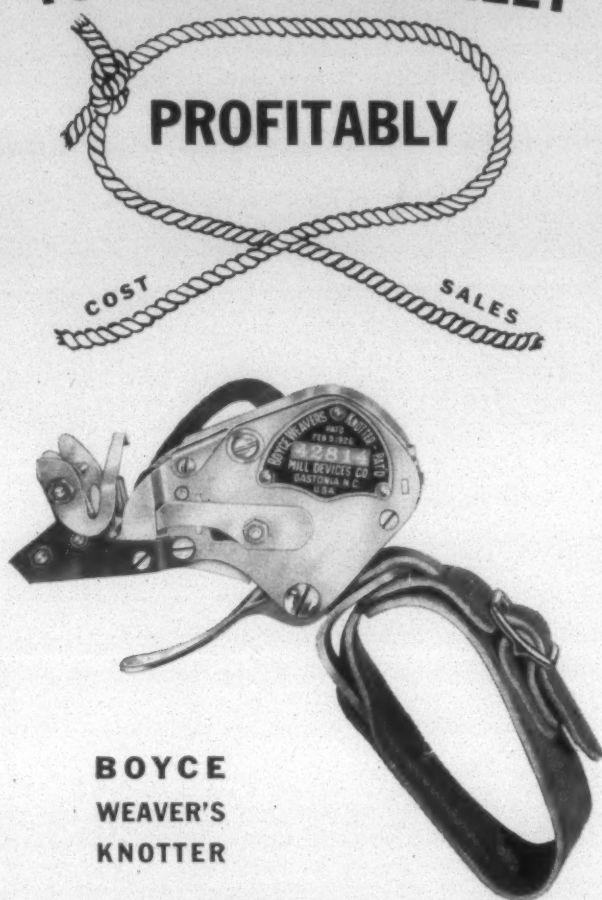
Confer On Textile Drying Methods

A liaison committee composed of representatives of utility corporations, equipment manufacturers, and textile mills met Aug. 4 at the Institute of Textile Technology, Charlottesville, Va., for an all-day conference on means of improving present methods of drying of textiles.

The 12-man committee, whose members are leaders in their respective fields, together with scientists of the institute, planned to formulate a textile drying research program to be carried out by the institute which should result in improvements in this important phase of textile manufacture. The meeting is an outgrowth of a heating and drying conference which was held at the institute last April. This session attracted many leaders from industries interested in the problem of drying textiles. At this earlier meeting, the whole problem of textile drying was thoroughly discussed, and Ward Delaney, president of the Institute of Textile Technology, appointed the committee to act as a liaison

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party between groups which are interested in this problem.

Various methods of drying, including infrared, high-frequency dielectric, and other methods currently in use, were discussed at the conference. The discussion was led by Dr. Warren Busse, technical director of the institute. Members of the institute's research staff taking part in the program included Dr. Alex Robertson, Ralph Feil, C. A. Casey and Lawrence Leatherland.

Members of the committee include: Edwin M. Clapp of Georgia Power Co., W. Paul Lyman of Carolina Power & Light Co., T. L. Bissell of Alabama Power Co. and C. E. Anderson of Virginia Electric & Power Co., representing the utilities group; Paul H. Goodell of Trumbull Electric Mfg. Co., Ira J. Barber of Fostoria Pressed Steel Corp., E. S. Lammers of Westinghouse Electric Corp., and William G. Ellis of the Industrial Electronics Section, Radio Corp. of America, representing the manufacturers group; R. H. Tuttle of Fieldcrest Mills, Division of Marshall Field & Co., Inc., Dr. Thomas G. Hawley of United Merchants & Manufacturers, Inc., M. T. Barnhill of Avondale Mills, Sylacauga, Ala., and Herman Granberry of West Point (Ga.) Mfg. Co., representing the mills group.

Mills Asked To Absorb Increase

Mills were urged to absorb the increase in rayon yarn prices in a statement recently by Herman Chopak, president of the Textile Distributors Institute.

"The rayon companies have from time to time been forced by increased labor and other costs to increase slightly their prices. But these increases have been a negligible cost to the mill. Now it should be pointed out that prices are

already high enough and there is such a thing as pricing oneself out of the market. This yarn increase due to labor can and should be absorbed by the mills.

"Retailers, cutters, distributors and some mills are giving good value. They are marketing merchandise which is pleasing and acceptable to the consumer. Any increase in the cost of goods will be a hardship for the consumer and will help speed up inflation. The textile industry owes it to itself to keep its prices within reasonable bonds and thus help to deflate the spirit of inflation."

New York Cotton Exchange Reduces Margins

Prompted by the large cotton crop in prospect this season and the need for providing ample hedging facilities for such a crop, the New York Cotton Exchange, effective Aug. 16, announced a reduction of \$5 to \$10 a bale in margins of speculative accounts on the exchange. The new margin rates are based on current government crop loan policies. Previous original margins for non-trade accounts were based on the market level of the staple. The new margin rates are as follows: \$10 per bale on transactions entered into up to 33 cents per pound; \$15 per bale from 33.01 to 36 cents per pound; \$20 per bale from 36.01 to 39 cents per pound; and \$25 per bale from 39.01 to 42 cents per pound with similar increases in each further advance of three cents per pound.

The annual meeting of the Narrow Fabrics Division of the Cotton-Textile Institute, Inc., will be held at the Carolina Hotel at Pinehurst, N. C., on Oct. 16 and 17, it has been announced.

An Invitation

The financial and operating personnel of textile plants are cordially invited to attend

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Note: This Exposition is exclusively for the textile industry, and is open only to those holding admission tickets. Because of limited aisle areas, children under sixteen years of age cannot be admitted at any time.

July Rayon Yarn, Staple Shipments Gain

Rayon yarn and staple shipments in July totaled 94,900,000 pounds, two per cent more than in June and 17 per cent over the corresponding month in 1947, according to the *Rayon Organon*, statistical bulletin of the Textile Economics Bureau, Inc. For the first seven months of the year, shipments of rayon totaled 632,400,000 pounds, an increase of 19 per cent over the January-July period of 1947. Filament yarn shipments in July amounted to 72,600,000 pounds, an increase of three per cent over the previous month and 17 per cent more than in July, 1947. Viscose+cupra yarn was shipped to the extent of 47,200,000 pounds and acetate 25,400,000 pounds. For the first seven months of 1948, viscose+cupra shipments were up six per cent and acetate 36 per cent. Rayon staple plus tow shipments in July amounted to 22,300,000 pounds, slightly under the June level, but 21 per cent above July, 1947. Shipments of rayon staple plus tow in the first seven months of 1948 were 32 per cent above deliveries in the corresponding period last year.

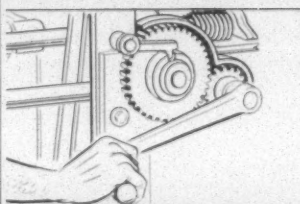
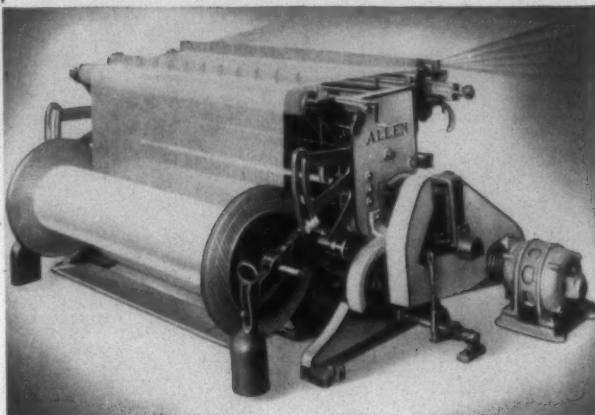
Filament yarn stocks held by producers at the end of July amounted to 9,400,000 pounds of which 6,300,000 pounds were viscose+cupra and 3,100,000 acetate. Rayon staple and tow stocks amounted to 4,000,000 pounds at the end of last month.

In a study of second quarter rayon production, the *Organon* points out that the industry continues its record-breaking pace with an output of 278,900,000 pounds, four per cent more than was produced in the first quarter of the year, and 17 per cent over the April-June period of 1947. An increase has been shown in each of the last eight quarterly periods. How notable has been the achievement of the industry in boosting its output is shown by the fact that in the first six months of the year, its production of 547,200,000 pounds fell only five per cent short of equalling the total output for the whole year of 1941.

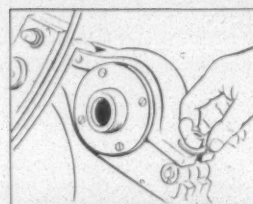
In the second quarter of 1948, new records were made both in the viscose+cupra and acetate processes of manufacture. Viscose+cupra filament yarn and viscose staple and tow output was two per cent over the first quarter and seven per cent over the corresponding period last year. Acetate filament yarn and staple output was nine per cent over the first quarter of 1948 and 46 per cent above second quarter 1947 output. Rayon filament yarn production totaled 210,900,000 pounds, an increase of 17 per cent over the second quarter of 1947. The major increase in filament yarn output was achieved by the acetate division of the

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industry with a total of 71,700,000 pounds. It represented a 45 per cent increase over the second quarter of last year but it must be taken into account that a strike at the plant of the largest acetate producer during June of 1947 cut deeply into last year's output. Viscose+cupra filament yarn production in the second quarter reached a new high of 139,200,000 pounds, an increase of six per cent over the corresponding quarter of 1947.

Second quarter production of rayon staple and tow amounting to 68,000,000 pounds, a 19 per cent increase over the second quarter last year, also set a new record. The increase in acetate staple production accounted for most of the staple and tow gain in poundage. Of the total second quarter staple and tow production, the viscose process accounted for 67 per cent and the acetate process 33 per cent. Filament yarn deliveries in the second quarter, totaling 206,900,000 pounds, also broke all previous records for domestic shipments. They were 19 per cent over domestic shipments in the corresponding period last year. Filament yarn shipments to the textile trades in the second quarter showed an increase of five per cent over the first quarter, while those to tire manufacturers increased 41½ per cent. For the first six months, yarn shipments to the textile trades amounted to 285,900,000 pounds, an increase of 19 per cent over the first half of 1947, while deliveries to the tire trade amounting to 118,100,000 pounds were up 5½ per cent.

Compared with January-March period, second quarter distribution of total yarn shipments to the individual domestic textile trades showed percentage changes as follows: fashioned hosiery, minus four per cent; seamless hosiery, minus two per cent; warp knitting, plus five per cent; broad woven, plus six per cent; narrow woven, plus four per cent; and miscellaneous uses, plus 13 per cent. There was essentially no change in the volume of shipments to the circular knitting trade.

Producers' exports of filament yarn, all processes, in the second quarter amounted to 4,300,000 pounds, 11 per cent more than the same quarter last year, and two per cent of the total second quarter domestic shipments. Out of a total of 3,400,000 pounds of viscose+cupra yarn exports, in the second quarter, 33 per cent were tire type yarn and 67 per cent textile type.

Industrial Personnel Conference Slated

The employment process and public and community relations will provide the main topics of discussion for the seventh Southeastern Industrial Personnel Conference to be held at Duke University, Durham, N. C., Sept. 1-2. Addresses by Dr. William McGehee of Fieldcrest Mills and Dr. Grant of J. D. Woods & Gordon, Ltd., will feature the opening day program. Dr. McGehee will discuss "The Use of Psychological Tests in the Employment Process," and Dr. Grant will consider "The Use of the Interview in the Employment Process."

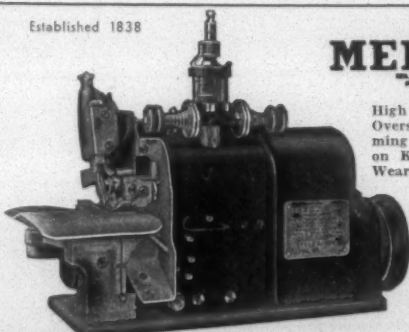
Public and community relations will be considered on the second and final day of the event. Speakers to be heard during this part of the program include Howard T. Colvin of the Federal Mediation and Conciliation Service, who will discuss "Good Labor Relations as A Part of Good Community Relations;" D. L. Mewhinney of Central Virginia Industries, Inc., "Lynchburg Public Opinion Survey — A Method for Community Relations;" and Lambert H. Miller of the National Association of Manufacturers, "Overtime

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on Overtime Decision of the Supreme Court." A panel discussion on community relations will be lead by Guy B. Arthur, Jr. John B. Turner, president of Associated Industries of Alabama, will address the dinner meeting concluding the event.

Cotton Research Congress Held In Dallas

The ninth annual meeting of the Cotton Research Congress was held July 22-24 at Dallas, Tex., and the approximately 400 persons in attendance were given conflicting reports on the future prospects of American cotton farmers.

Secretary of Agriculture Charles F. Brannan said the outlook for American cotton in the years immediately ahead "is better than it has been for at least two decades." A Memphis, Tenn., banker, however, cautioned the cotton trade that while the price of cotton has increased 25 cents a pound in the past eight years, "we now may be at the brink of a period of transition."

William A. Wooten, vice-president of the First National Bank of Memphis, cautioned that "the pipe lines in this country are being rapidly filled. Exports of cloth are about one-half of what they were last year, when they represented almost 15 per cent of our domestic output. Crop conditions in foreign countries are much more favorable than they have been in several years. Paper, rayon and other competing fibers continue to make inroads on cotton. The productive capacity of synthetics is being materially increased here and abroad."

Mr. Brannan saw a great need for expanding research on cotton. Suggesting that for the next few years, at least,

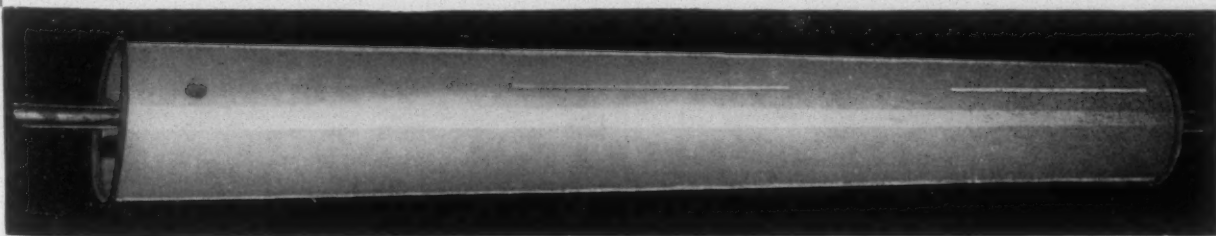
the largest market by far for American cotton will be the domestic market, he stated "that is why I am convinced that we are on the right track in putting so much emphasis upon utilization research." The cabinet member said a revival of world purchasing power will lay the foundation for a good future for cotton. Then, he asserted, American cotton will have to prove that it can stand off price and quality competition by foreign cotton and substitute products. Cotton exports this year are expected to be about two million bales against 3.5 million last year, he said, adding that this country should be able to maintain a sizable export market for the next few years.

Keynote address on the congress theme "Cotton Counts Its Opportunities" was presented by Burris C. Jackson, general chairman of the statewide cotton committee of Texas, who declared: "We must not arbitrarily reduce the farmer's selling price, yet means must be found of growing cotton more cheaply so that the farmer may sell his product at a lower price, receiving the same or more net income."

Other outstanding speakers heard during the congress were: E. D. White, chief of the cotton division of the Economic Co-operation Administration; Dr. Leonard Smith, technical director of research on the uses of cotton for the National Cotton Council; Dean George H. Coleman of the Institute of Textile Technology at Charlottesville, Va.; Claude L. Welch, director of the division of cotton production and marketing for the National Cotton Council; Dr. N. R. Whitney, economist of Proctor & Gamble Co.; Lester M. Blank, pathologist, bureau of plant industry soils and agricultural engineering at Texas Agricultural Experiment Station; M. K. Thornton, T. R. Richmond and S. G.

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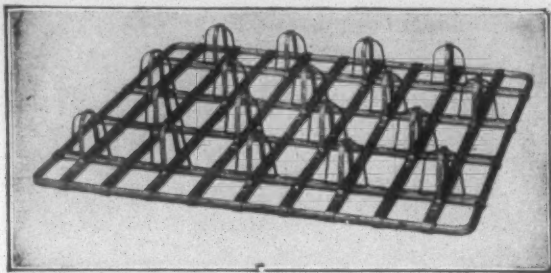
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Stephens of A. & M. College of Texas; William J. Martin, John F. Moloney, John Leahy, J. R. Johnston, D. A. Hulcy, H. B. Barker and H. G. Johnston.

The event was concluded with an exhibit of cotton machinery in its sequence of use in cotton production. This is the first year the cotton mechanization show has been a part of the research congress, with more than 20 manufacturers of cotton equipment combining to furnish machinery for the show.

Drop In U. S. Wool Output Seen In 1948

The Department of Agriculture believes a sharp drop in shorn wool production by the United States is imminent. According to estimates of the Bureau of Agricultural Economics, the quantity of wool shorn and to be shorn in 1948 will be about 237,290,000 pounds. This figure is nearly 16,000,000 pounds, or six per cent, less than shorn wool production in 1947 and 116,000,000 pounds, or 33 per cent, below the 1937-46 average. Officials state that reductions this year are due largely to a decrease in the number of sheep shorn, since the average weight per fleece was only slightly smaller than last year.

List Advantages Of New Synthetic Resins

Cotton that looks like linen and rayon that has the feel and appearance of fine silk are now made possible by the use of new synthetic resins such as those developed by the American Polymer Corp. of Peabody, Mass. These resins are becoming more and more important tools in combining the properties of plastics and textile fibers. They are said to make nylon hosiery snag proof, increase the wearability and rub resistance of fabrics, make possible permanent starching of clothes, curtains and other textile products, and provide tough, flexible, washable coatings for artificial leather, crib sheeting and baby pants. Polysize emulsions were specially developed for manufacturers of textile finishes faced with demands for new qualities in the finishes produced by them. Because they are basic ingredients for finishes rather than ready-to-use finishes themselves, these new products are being offered only to manufacturers of textile finishes.

The resins in polysize emulsions are completely pre-cured. Only drying is required to set them. Finishes prepared with them are said to be lightfast, non-yellowing and don't become brittle with age. They are odorless, tasteless, and harmless to the skin as well as being highly resistant to

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acids, alkalis, oils and fats. With polysize emulsions, there's no tendering, no absorption of chlorine in bleaching, no increase in the flammability of textiles, and they won't cloud, discolor or alter textile dyes. Resistance to mildew, rot and souring, plus their ability to withstand laundering and dry cleaning are other special qualities which are of importance to the industry. A new data sheet, P-5, describing the qualities these new emulsions impart to textile finishes is available on request to American Polymer Corp., 101 Foster Street, Peabody, Mass.

Silk Again Offered In Assorted Lots

The S. C. A. P. Foreign Trade Office in New York announced recently that Japanese silk may again be purchased in selected assortment lots of 300 bales. Sales of the assorted lots were suspended in July for a resurvey of available stocks. Prices of the assorted lots, it was indicated, will remain at the old levels ranging from \$2.45 a pound for Grade D, 78 per cent, to \$3.25 a pound for Special AAA, 94 per cent, with a package discount of 15 cents a pound. Under a new assortment breakdown, purchasers will receive 100 bales of 13/15 denier and 200 bales of 20/22 denier.

The revised Japanese government ceiling prices on raw silk have not been announced as yet but increases are expected based largely on the recently raised provisional cocoon prices established by the government pending a final determination, as well as increases in labor costs and in other factors of a purely domestic nature since the ceiling rates were set in the Summer of 1947. The most important issue in the pending raw silk price revision is the question of

grade and denier differentials. The premiums paid to reelers of higher grades are expected to influence greatly their efforts to produce the types most urgently wanted by the export markets.

Rayon Yarn Price Hike Announced By Viscose

Rising operation costs, principally that of labor, is expected to result in a general increase of yarn prices among most leading rayon producers. Trade sources indicate the rayon producers will announce a hike in prices of about ten per cent on either their September or October allotments. The American Viscose Corp. was the first firm to announce a price increase for its products and other producers are expected to follow closely the Viscose advance.

Viscose announced an increase in prices of Avisco viscose rayon yarn and staple products Aug. 9. Viscose yarn cakes are increased two cents per pound; viscose cones, skeins and other packages are increased three cents per pound. Viscose tire-type yarns and cord fabrics are increased two cents per pound. Avisco rayon staple and tow are increased one cent per pound. No change was announced in prices of Avisco acetate rayon yarns, and it was stated that the company is continuing to book September business in acetate rayon yarns at current prices. All other terms of sale remain unchanged, it was said.

Reflecting cumulative increases in material costs and wage rates, Industrial Rayon Corp., Cleveland, Ohio, Aug. 16 announced price increases averaging approximately 5½ per cent over-all. The advances average approximately nine per cent for textile rayon and four per cent for tire rayon prod-



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ucts. Price increases for tire yarn, cord and cord fabric, effective Sept. 1, range from two to three cents per pound and represent the company's first price advance for these products since February, 1947. The new prices for textile yarns, effective at once, are as follows: weaving cones and skeins of normal tenacity—100/40 denier/filament, \$1.05 per pound; 100/60, \$1.08; 150/40, 82 cents; 250/60, 71 cents; 300/80, 64 cents; 450/60, 62 cents.

A. A. T. C. C. Research Committee Active

The Executive Committee on Research of the American Association of Textile Chemists and Colorists announces that the Sectional Advisory Research Committee of the Piedmont Section, under the leadership of Chairman V. B. Holland with members J. B. Neely, C. B. Ordway, L. C. Reynolds and R. H. Souther, has arranged with Clemson (S. C.) College to have graduate students assigned to three projects of interest to A. A. T. C. C. These projects are: (1) a comparative evaluation of the dyeing properties of normally rain grown versus irrigated cotton. In this project California irrigated will be compared with Mississippi Stoneville 2B rain grown; (2) identical with number one except the cottons studied will be Arizona irrigated and Texas rain grown; (3) the effect of some variables on the dyeing of viscose rayon, with vat and naphthol dyes.

Under numbers one and two, time permitting, raw stock, yarn and fabric dyeing will be studied using Jade Green and Blue BCS for the vat dyes and Naphthol AS-SW with Red B and Red KB Bases. In number three the same dyes

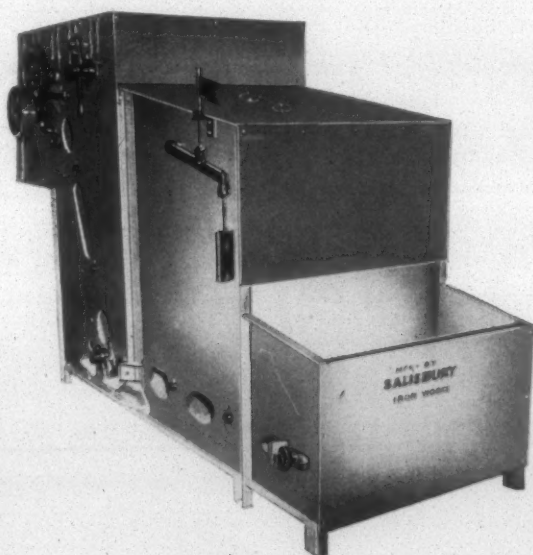
will be used. Temperature variations will be studied in the range from 120° F. through 180° F. in ten degree steps. The effect of various dyeing assistants such as dextrans, glucose and glues will be determined. Variation in time of dyeing from ten minutes up to 30 or more minutes is planned. Observations on pH and consumption of hydro-sulfite will be recorded.

The Executive Committee on Research has accepted the New York Sectional Advisory Research Committee's request to set up a committee on "Evaluation of Dispersing Agents and Wetting Agents to aid in Dyeing Cellulose Acetate Specifically and New Fibers in General."

The chairman is Dr. E. I. Valko of E. F. Drew & Co., Boonton, N. J.; and the other members of the committee are as follows: Russell J. DeWitt, United Piece Dye Works, Lodi, N. J.; R. G. Fiddes, General Dyestuff Corp., 435 Hudson St., New York; L. H. Flett, National Aniline & Chemical Co., 40 Rector St., New York; Max Licht, Allied Textile Printers, Paterson, N. J.; H. E. Millson, Calco Chemical Division, Bound Brook, N. J.; H. G. Scull, A. M. Tenney Associates, New York; Dr. Paul Wenraf, Elmhurst, L. I.; and John A. Zelek, Textile Colors Division, Interchemical Corp., Fair Lawn, N. J.

Other A. A. T. C. C. Research Committee highlights are as follows:

Washing (C. A. Seibert, chairman)—Working on attachments for use in Launder-Ometer to give test conditions more closely indicating commercial laundry practice; co-operating with American Standards Association to deter-



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ALSO MODEL F-5**


Loom Beams

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### SALISBURY ENCLOSED BLENDING FEEDER

Model S BF-1 Salisbury Enclosed Cotton Blending Feeder is used for the processing of cotton, wool, and synthetics.

This machine has been designed by textile engineers long experienced in the development and operation of machinery for the textile industry. Salisbury Blending Feeders are precision manufactured of the finest quality materials and workmanship to render long and dependable service with a minimum of maintenance and operational cost.

#### GENERAL SPECIFICATIONS

The Salisbury Enclosed Blending Feeder has a heavy fabricated steel frame which makes it a rugged, durable, and trouble free unit. All gears and chains are covered with guards for safety.

Oilite bronze self-aligning bearings are used throughout, eliminating oil leakage and assuring clean fibres.

Provisions are made for the installation of automatic sprinkler head and vacuum lines. All usable waste fibres may be reclaimed from waste container.

Salisbury Blending Feeders are designed to allow installation of kick-off roll or combing attachment.

The machine may be used in a blending line or in combination with a picker.

This model is provided with ample storage space. This facilitates better blending of various fibres and requires less attention from the operator.

Model S BF-1 as shown is equipped with a lower or front apron which extends outside the storage chamber of the machine and has a small bin into which the raw material is placed by the operator. It is then carried into the storage chamber on the conveyor apron. This model also has a combing attachment as standard equipment.

This machine is manufactured of the finest material and workmanship and has proven its worth by satisfactory, trouble free operation.

mine the American woman's viewpoint on service life of colored garments.

*Light* (W. A. Holst, chairman)—National Bureau of Standards about ready to distribute blue calibration papers for Fade-Ometer; studying other methods of controlling or calibrating Fade-Ometer performance.

*Perspiration* (J. Dalton, chairman)—Coming to agreement on new test conditions: plate method in place of tubes, flat multifiber fabric, pressure ten pounds, temperature 100° F.; advantages of proposed new test method: better reproducibility, easier appraisal, complete test within eight-hour period.

*Dimensional stability* (Dr. W. Coughlin, chairman)—hosiery section, 1,200 pairs hose being knitted for testing program; wool section, need for clarification of knitted garment situation recognized.

*Small color difference* (Frank O'Neil, chairman)—New name suggested, "Visual Aids for Evaluating Color Differences;" will avoid expensive instruments which are not likely to be generally available: (1) nature of color changes after test treatment, (2) exploration of visual aids, and (3) selection and recommendation of specific devices.

*Finishing materials* (Dr. J. E. Lynn, chairman)—Need help from industry on test methods.

*Wool detergents* (H. Christison, chairman)—Developing a detergency comparator; evaluation will proceed upon arrival of new model.

*Color* (Dr. E. I. Stearns, chairman) — Proposed test methods for (1) dyeing of wool with acid dyes and (2) spectrophotometric examination of dyes in solution.

## A. A. T. C. C. To Display Testing Apparatus

The committee on exhibits for the 27th national convention of the American Association of Textile Chemists and Colorists, meeting in Augusta, Ga., Oct. 21-23, will have on display apparatus for testing textile materials in nine different fields:

*Water resistance*—This display will consist of a spray rating tester, a hydrostatic pressure tester and a rain tester. The test procedures on each of these pieces of equipment will be demonstrated.

*Light fastness*—The exhibit will include a Fade-Ometer, the standard machine used in determining the light fastness of dyed textiles. Samples and charts will be on display.

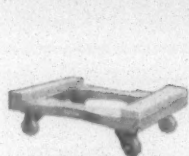
*Wash fastness*—A Launder-Ometer for testing color fastness of dyed textiles to washing will be in operation as part of the exhibit. Much of the results of the present investigation on the importance of abrasion in wash fastness evaluation, as well as the various types of containers developed and tested during this research, will be on display.

*Detergency*—The Detergency Comparator, a machine for the laboratory evaluation of detergents which has every indication of being able to accurately predict plant performance, will be in operation. Sample pairs of knit tubing, stained with a standard soil, are washed under identical conditions and after rinsing and drying are compared by means of a reflectometer to rate the efficiency of the detergents under test.

*Flammability*—Equipment for measuring the speed of burning of textiles in general but more particularly pile

*Is your Materials Handling*

**ACCIDENTAL or  
ENGINEERED ?**



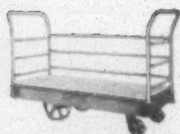
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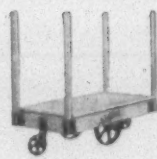
In many businesses, the handling of materials has grown on a "haphazard" basis, as the business has grown. If this is true in your case, you will be surprised at how much your whole production program can be speeded up—and your handling costs reduced — by a properly engineered materials handling system and selection of trucks exactly suited to each type of work. More than 1,000 truck designs have been developed in the Nutting line because they were needed.



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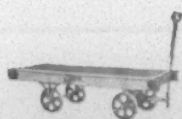
Non-Tilting  
Platform Trucks



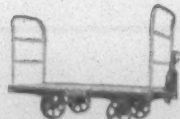
Balance Type  
Stake Trucks



Balance Type  
Rack Trucks



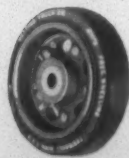
Wagon Type  
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fabrics and lightweight fabrics which tend to burn rapidly will be shown.

**Perspiration**—Method for testing the fastness to perspiration will be demonstrated. The new and improved plate method will be on display.

**Insect Pest Deterrents**—Equipment for testing the efficiency of insect pest deterrents consisting of a life-cycle cabinet in which uniform conditions of temperature and humidity are maintained will be displayed.

**Crocking**—Three crockmeters will be on display; the regular standard machine, the dual machine and a Shirley type machine which is in this case a regular crockmeter to which has been attached the various features introduced by the Shirley Institute of Bradford, England. Color transference charts which are used in determining the degree of crocking will be shown.

Sherman A. Converse of Graniteville (S. C.) Co., chairman of the committee on exhibits, and G. Robert Thompson of Lowell (Mass.) Textile Institute will be present to explain the operation of the different pieces of equipment. Other members of the exhibits committee who will assist are: R. P. Timmerman of Gregg Dyeing Co., Graniteville, S. C.; Carroll A. Reddic, Jr., of Southern States Chemical Co., Augusta, Ga.; William F. Thompson of Clearwater (S. C.) Mfg. Co.; George P. Callaway of Avondale Mills, Sylacauga, Ala.; Dr. Howard M. Waddle of West Point Mfg. Co., Shawmut, Ala.; L. L. Bamberger of Lanett Bleachery & Dye Works, West Point, Ga.; A. D. Campbell of Althouse Chemical Co., Chattanooga, Tenn.; W. M. Slaughter of Callaway Mills, Elm City Plant, LaGrange, Ga.; R. S. Stribling of Springs Bleachery, Lancaster, S. C.; S. H. Williams of General Dyestuff Corp., Charlotte, N. C.; S. M. McKeown of Graniteville Co., Sibley Division, Augusta, Ga.; William Agnew and James W. Dooley.

## New Philadelphia Textile Building Started

Actual construction of the new Philadelphia Textile Institute is starting this month, according to Charles W. Carvin, national chairman of the institute's development fund. The institute's board of trustees, Mr. Carvin said, hopes that the new school, which is to be located on a 12½-acre plot in Germantown, Pa., will be ready for operation for the Fall term of 1949.

Mr. Carvin also stated that the institute has "immediate need" of approximately \$750,000. This, plus the \$1,000,000 now available, will enable completion of the institute on schedule, he added. In an effort to secure this additional money in 1948, the institute will inaugurate a campaign this Fall for contributions from the textile industry, institute alumni, and friends of the school.

After careful study by the curriculum committee of the institute a new lecture course has been established. The committee composed of Director Hayward, Dean Cox, Ward France, Frank Giese, Bernard Koenig, Gordon Marwine,

## Package Dyeing and Bleaching

ALL TYPE COLORS  
ON COTTON YARNS

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Constantin Monego, Percival Theel, Bruce Thomas and Robert Tumbelston decided that a series of lectures on important textile subjects for seniors which would act as a synthesizing feature of their education would be desirable. A series of lectures has been arranged through co-operation from industry.

The institute has announced the following staff additions and advancements: Donald B. Partridge of Salem, Mass., has been appointed admissions and placement officer. The worsted department has obtained the services of George K. Erben, formerly vice-president and treasurer of Erben-Harding Co. Paul Siminuk, formerly with Continental Mills, has been appointed head of the power weaving department and as a new assistant in the weaving department Mr. Siminuk has secured Stanley Barker, formerly with E. W. Twitchell Co. Miss E. Lillian Watt, Drexel School of Library Science, has been named head librarian. William T. Clay of Beswick & Clay Co. has been appointed assistant professor of the wool department. In the knitting department William H. Haselton will assist Professor Naab. Don Alterman, a graduate of Temple University, has been named assistant to Professor Giese in the weave formation and fabric analysis department.

Promotions among the faculty in addition to those mentioned include Thomas Foltz to assistant professor of chemistry; William Hughes to associate professor of chemistry; Martha Jungerman to assistant professor of jacquard and color; Ercal Kaiser to assistant professor of jacquard and color; Robert Kenyon to assistant professor of dyeing; Bernard Koenig to associate professor in charge of jacquard and color; Gordon Marwine to associate professor of physics;

Grant Smith to assistant professor of mathematics; and Robert Stafford to assistant professor of hand weaving.

### Potentialities Of Ramie Are Studied

Ramie fiber and fabrics offer interesting potentialities to the textile industry, according to a study by Harold T. Coss of the Johns-Manville Corp. and James L. Taylor, professor of textile engineering at the Georgia Institute of Technology, Atlanta. In a research paper on "Ramie Today," Mr. Coss and Dr. Taylor have described in some detail the results of experiments conducted in the Georgia Tech Engineering Experiment Station, the A. French Textile School at Georgia Tech, and the Johns-Manville research center.

The authors feel that there is little likelihood that ramie will materially replace cotton, even when handled as staple fiber on ordinary cotton mill equipment. However, "it is possible to make fabrics from staple ramie that would equal or even out-perform line flax fabrics (linen) in general wear resistance, and would compare favorably with linen in appearance and hand. Ramie is especially suitable for use in high grade specialty fabrics, where a premium in appearance or serviceability is attractive and desirable."

The ramie fibers studied came from the Philippines, Sumatra, Brazil, West Africa, Cuba and Florida. Considerable variation in quality and preparation was noted in the Florida fiber, "only a small amount being of the 'wash-decorticated' type" which is most suitable for use. The authors found that several processes could be used to degum ramie fibers, but that close control was necessary. As regards textile processing on cotton mill equipment, proper

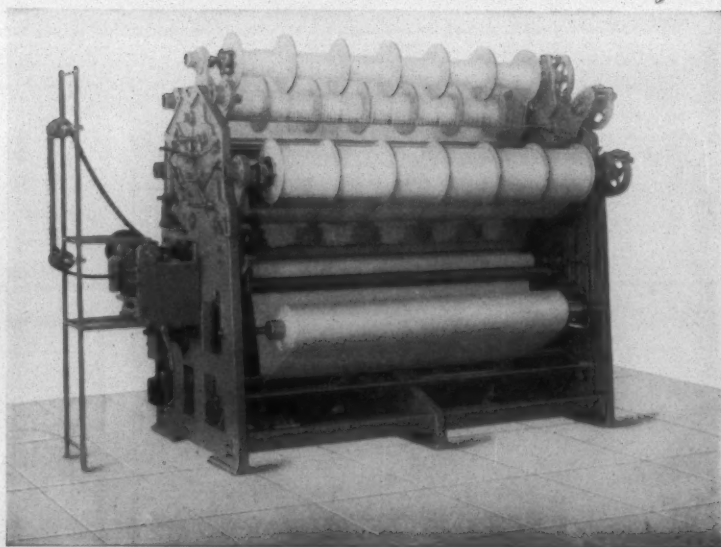
## The NEW REINER KAY LOOM

The following is a partial list of products that can be made on this new Reiner combination knitting and weaving loom:

- ELASTIC CORSET FABRICS (one or two-way stretch, full width section or ribbon)
- SUSPENDERS
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- SHOE CLOTH (elastic)
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- DRAPERY FABRICS
- CURTAINS
- VEILINGS
- FUR FABRICS
- BRUSHED FABRICS (full width or narrow)
- GLASS FABRICS (full width or narrow)
- ASBESTOS FABRICS (full width or narrow)
- All fabrics can be made with or without filling.

The Reiner Kay loom can also be supplied as a plain, single needle bar Raschel machine.

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"BILTRITE" CANVAS LUG STRAP  
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Basket weave twister & spooler tape  
Double loop hook bands for cards, twisters, spoolers, etc.  
(all lengths and diameters)  
Mule ropes all sizes diameters  
Broided spindle band  
ing for mules, etc.

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opening of the fibers after degumming has proved difficult, and special adjustments must be made in the cotton mill equipment before the fibers can be spun.

Ramie yarns and fabrics may be dyed and finished in more or less conventional manners. The fabrics developed were made into Summer wearing apparel, table fabrics, draperies, upholstery materials, and kitchen towels. Among industrial products made were packing, heavy canvas, braided wire covering, narrow tapes, and marine cordage. Some of the heavier weight fabrics woven from coarse style yarns take on an attractive worsted appearance.

Much has previously been published on the high strength of ramie, as well as its brittleness. The authors found that fabrics and yarns made from stapled ramie fibers do not retain the high strength of the unstapled fibers, although they are still generally superior to cotton. Brittleness was not found to be an inherent characteristic and can largely be controlled by degumming and finishing treatments. Ramie yarns and fabrics were found to be superior to both cotton and linen in resistance to flexing and to residual shrinkage during repeated launderings, in tearing strength and bursting strength, and in tensile strength while wet. They are superior to linen in resistance to mildew, and the fabrics demonstrated excellent resistance to deterioration due to folding and creasing. The ramie fabric was slightly "cooler" than the cotton in a coolness test on comparable fabrics.

Harold T. Coss is supervisor of thermal insulations and textile research of the Johns-Manville Research Center. Dr. Taylor is a faculty research associate of the Georgia Tech Engineering Experiment Station and a professor in the A. French Textile School at Georgia Tech.

Ramie is now being produced as packing for reciprocating pumps by United States Rubber Co. Company engineers have found that ramie is highly resistant to fresh or salt water, brine or cold oil. Its tensile strength, they point out, is unaffected by moisture and, in fact, increases slightly when wet. U. S. Rubber is marketing ramie packing square plaited, in coil form and in sizes of one-quarter inch thickness and larger.

### Textiles Rated Eighth Safest Industry

Textile manufacturing has moved up from 14th to eighth position in the National Safety Council's latest listing of safety ratings for the country's 40 major industries. Figures just released by the Statistical Division of the council reveal

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that in 1947 the textile industry had only 8.83 disabling injuries per one million man-hours compared with an average of 13.26 for all industries. In 1946, the council placed the textile industry in 14th position in its listing, with 11.44 disabling injuries per one million working hours against an all-industries average of 14.16.

Considering the severity of industrial accidents—injuries which result in time lost from jobs—the council's compilation disclosed a rate of 1.23 for all industry and .54 as the textile industry's average, compared, respectively, with 1.28 and .78 for 1946. Along with the textile industry's improved position in mill safety, a number of individual plants are winning recognition for outstanding accident prevention records, safety authorities point out.

Recently the King Philip "B" division plant of Berkshire Fine Spinning Associates in Fall River, Mass., was awarded the 1947 grand trophy of the Massachusetts Safety Council for the best safety record of any firm in the highly industrialized Bay State. C. Lawrence Muench, vice-president of the Associated Industries of Massachusetts, the association which offers the annual award, revealed that for the years 1946 and 1947, the Fall River mill had an unblemished safety record among its 600 employees.

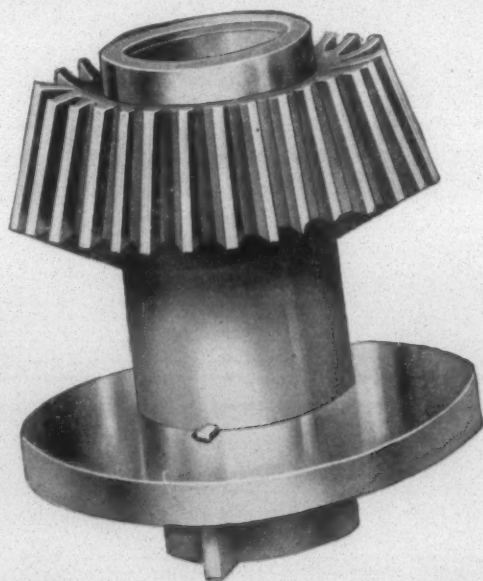
According to National Safety Council figures, top all-time honors among all industrial establishments in the land are held by the Seaford, Del., nylon plant of E. I. du Pont de Nemours & Co., which operated for 18,871,795 successive injury-free man-hours. Running a close second is the Spruance rayon plant at Richmond, Va., also a Du Pont concern, with a mark of 16,109,608 man-hours without injury, while employees of The Trion Co.'s cotton mill in

Georgia have worked 10,495,544 man-hours without a lost-time injury.

Several reasons are offered for the textile industry's improved showing in accident prevention. Along with the usual machinery safeguards, automatic stop-motion controls, covered gears and the like, many mills are making use of improved fluorescent lighting, scientific painting to improve vision and mark possible hazard points, and intensive safety training.

Mill safety, however, is not just a matter of protective devices, rules, and safety programs. So declares the vice-president of one of the country's largest commercial insurance firms, who says: "In a real sense, industrial plant safety is a valuable by-product of sound manufacturing. It's not something to be gained primarily by slogans or safety engineering; instead, it comes with industrial know-how on the part of management and workers alike." The most modern plants, in his opinion, will prove to have the best accident prevention records. He states, for example, that one-fourth of all industrial mishaps occur in handling materials. When a mill introduces modern, efficient methods of moving materials, it automatically lowers its losses from accidents. "First rate production means first rate safety conditions," he emphasizes and in this he sees promise of even fewer occupational accidents among textile workers, because the industry is currently modernizing its plants at a rate of more than \$200,000,000 a year.

The National Cotton Council has initiated a campaign to reduce the occurrence of irregular and unevenly packed cotton bales.



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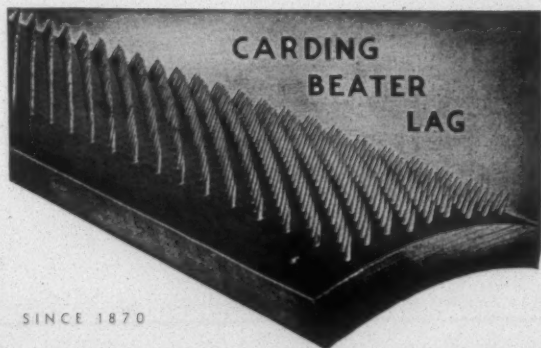
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## Cotton Advisory Group Holds Meeting

The Cotton and Cottonseed Advisory Committee under the Research and Marketing Act, at a recent meeting, briefly reviewed the 1947-48 (fiscal year 1948) program for cotton under the act and again made the recommendation that the 1947-48 projects on cotton and cottonseed be given top priority for 1948-49. The committee appraised the new lines of work (particularly of an "A" priority classification) tentatively proposed at its March meeting for initiation in the 1949 fiscal year, and made revisions which seemed desirable in light of the current situation.

After appraising the 1949 program for cotton, the committee recognized that it included many items which the department would be unable to initiate during that year because of the lack of funds and the need for continuing projects initiated in 1948, but it was agreed that these items should have a higher priority than the additional proposals recommended for fiscal year 1950. At its next meeting the committee will assign specific priorities to all work recommended for 1950.

## Acetylation Of Cotton Studied By Group

The Southeastern Section of the American Association of Textile Chemists and Colorists, at a meeting in Atlanta, Ga., recently, were told that better process control and less expensive and more practical ways of effecting acetylation of cotton was one of several important studies being carried on at the Southern Regional Research Laboratory's Cotton Chemical Finishing Division. The speaker, W. B. Strickland, cotton technologist on the laboratory staff, explained that "partially acetylated cotton is virtually a new fiber because of its greatly changed properties, but the treated yarn and fabrics cannot be told from cotton by its appearance."

The preparation of partially acetylated cotton has been carried far enough to show that it can be done with slight changes on conventional cotton machinery, he explained. "For practical operation on a large scale, however, improved processes which can be operated at lower cost are desirable and machinery especially adapted to them. These objectives are being sought." The greatest interest has been in its resistance to some form of biological attack, he said.

Herman J. Jordan, Jr., of Wiscasset Mills Co., Albemarle, N. C., another speaker heard during the meeting, discussed "Package Dyeing." C. Russell Gill of Southern Sizing Co., chairman of the Southeast Section of the A. A. T. C. C., presided at the meeting. Guest speaker at the

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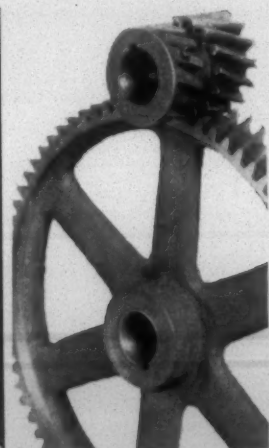
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banquet session was James V. Carmichael, president of Scripto, Inc.

### Marketing Cost Of Cotton Is Lowest

While most cotton producers don't know it, cotton, the nation's number one money crop, goes to market at the lowest cost of any commodity in the country, according to Edgar Kucera, president of the Dallas (Tex.) Cotton Exchange. This amazingly low marketing cost, less than one per cent of the total value of the cotton crop, is possible only because free enterprise and keen competition have free rein among cotton merchants all over the country and keep each merchant bidding against the other for the snowy fleece, Mr. Kucera points out.

The eagerness of the cotton merchants to buy cotton at a price higher than that of their competitors keeps the producer's price up, and the amount of cotton the merchants handle, nearly 100 per cent of the annual crop, allows them to hold marketing costs down. Free competition among cotton merchants, Mr. Kucera declares, is the only thing that keeps cotton from selling consistently more cheaply, and this same competition plays an important part in holding down the cost of finished cotton products. If cotton were not marketed at such a phenomenally low cost, the extra cost of marketing would, like every other cost, have to be paid by the ultimate consumer.

This sprightly, and sometimes rough-and-tumble, competition between cotton merchants for the white harvest goes a long way in getting the producer the last possible dollar for his bale of cotton. Even among street buyers,

who are agents for cotton merchants, the competition is usually too keen for a buyer to take the risk of bidding too low for cotton. The government, in its large-scale cotton operations, recognizes the fact that the marketing system operated by the self-regulated cotton merchants is the most efficient and economical system, and buys most of its cotton through cotton merchants. For example, to make E. C. A. dollars go farthest, the government will purchase through cotton merchants all of the cotton it sends abroad under the European recovery program.

No cotton merchant will deny that he is in business to make a profit on the cotton he buys, Mr. Kucera declares. But his efficient and economical service in seeing that cotton reaches its ultimate consumer at the lowest cost to the consumer, after giving the producer the highest possible price, constitutes a major contribution to the entire cotton industry, from farmer to retail distributor.

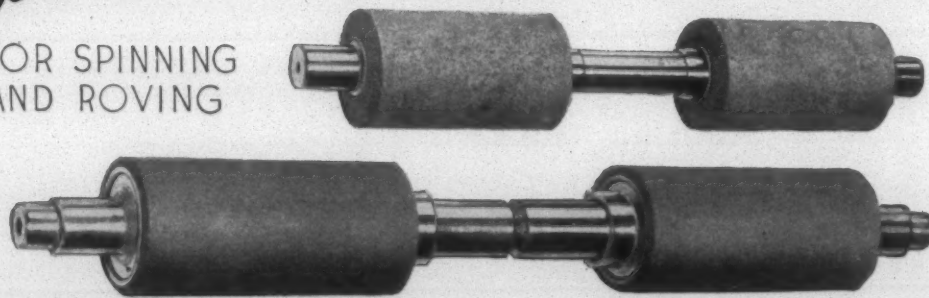
### Reports Theme Microbiological Degradation

A high degree of resistance to microbiological degradation can be imparted to cotton cloth through impregnation with various resins according to a report now on sale by the Office of Technical Services, Department of Commerce. The report is one of a series prepared by the Tropical Deterioration Research Laboratory of the Office of the Quartermaster General as a result of its research on the development of a microbiologically resistant fabric. Three other reports of the series are also available from O. T. S.

The latest report in the series, PB-86252 (*Resin Impregnation of Cotton Fabrics for Prevention of Microbiological*

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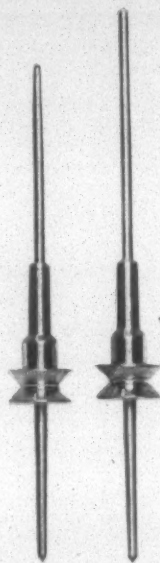
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*Decay*; by Drs. W. Lawrence White and Ralph G. H. Siu; mimeographed, 50 cents; nine pages), is concerned with the use of resin impregnations as an inert physical barrier between the invading micro-organisms and the cotton fiber. "Histological investigations on the penetration of cotton fibers by fungi and bacteria indicate that the organisms attack from the outer surface inwards in an apparently highly localized manner," according to the report. Any physical barrier which would prevent the fungi or bacteria from coming into intimate contact with the fabric should therefore protect it against microbiological attack. According to the test results given in the report, such a barrier has been found in the case of resin impregnations.

The organisms used for the investigation were *Aspergillus flavipes* and *Metarrhizium glutinosum*. Various resin impregnations were tested. Soil burial tests in which the samples were subjected to attack by the mixed microbiota of fungi and bacteria were also made. Complete resistance was exhibited by cloths with about 11 per cent Aerotex 450, six per cent Aerotex M-3, 12 per cent Uformite, 12 per cent Rhonite, seven per cent Resloom HP, seven per cent Resloom NC-50, and seven per cent urea-formaldehyde resins. High resistance to microbiological decay was exhibited by lower concentrations of resin-impregnations, the report states. Unmercerized cloth proved to be affected by micro-organisms at a slower rate than mercerized cloth. Tables illustrating the results of tests with the various resins are included in the report.

Two other major lines of attack were followed by the Quartermaster Corps in developing a microbiologically resistant fabric, the report points out. The application of fungicidal agents on cotton fabrics was the standard practice during the past war. Recent fundamental research on the mechanism of microbiological deterioration of cellulose stimulated efforts in the direction of a chemical modification of the cellulose molecules on the surface of the cotton fibers.

The other three reports in the series are: PB-31871 (*Field Studies of the Deterioration of Textiles Under Tropical Conditions*; by Elso S. Barghoorn; microfilm, \$6; photostat, \$18; 268 pages) is primarily concerned with the qualitative evaluation of the performance of selected textile treatments and finishes during exposure to tropical environment and an analysis of the causes and rate of deterioration of textiles under varied conditions of tropical exposure. These two objectives were studied during the course of four field investigations carried out in the Panama Canal Zone, Australia,

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lia, New Guinea and the Southern United States during 1944, 1945 and 1946. Extensive series of fabric samples containing various fungicidal treatments, fabric pretreatments and special finishes were exposed for study. Physical measurements are summarized with respect to the following changes in the textiles: tensile strength loss after varying periods of exposure; variations in hydrogen ion concentration during exposure; and changes in viscosity in cuprammonium solution after exposure in diverse environments. Photographs, map, charts, graphs and tables are included in the report.

PB-22339 (*The Microbiological Degradation of Cotton Fabrics*; by Ralph G. H. Siu and W. Lawrence White; photostat, \$5; microfilm, \$1; 63 pages) is designed to reveal and develop the scientific background required for intelligent progress in the improvement of protective measures for textile products. The report summarizes and appraises research on the degradation of cotton fabrics by microorganisms through 1945. In 150 samples of deteriorated cotton fabrics, obtained by the Army from tropical areas, 1,800 fungi were found. All were identified as to genus, and names were assigned to 101 species. This report includes a list of the identified species of fungi along with tables showing the cellulolytic activity of fungi isolated from the deteriorated fabrics.

PB-22340 (*The Effect of Ultraviolet Light on Cotton Cellulose and its Influence on Subsequent Degradation by Micro-organisms*; by R. P. Wagner, Harold H. Webber and Ralph G. H. Siu; photostat, \$5; microfilm, \$1; 65 pages) validates the theory that ultraviolet radiation increases the resistance of cellulose fiber to fungus attack. However, as

measured by the Pressley index of tensile strength of cotton fibers, the loss of tensile strength is positively correlated with ultraviolet light intensity and temperature but is independent of oxygen concentration and humidity. Diagrams of apparatus, as well as detailed descriptions of methods used in the research, are included.

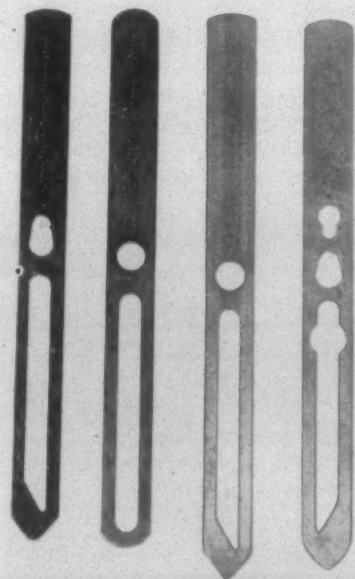
Orders for the reports should be addressed to the Office of Technical Services, Department of Commerce, Washington 25, D. C., and should be accompanied by check or money order payable to the Treasurer of the United States.

### Copies Of CS103-48 Offered For Sale

Printed copies of "Rayon Jacquard Velour (With or Without other Decorative Yarn) Second Edition, Commercial Standard CS103-48," are now available, according to an announcement by the Commodity Standards Division of the National Bureau of Standards. Copies are for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at ten cents each. A discount of 25 per cent will be allowed on orders of 100 or more copies sent to a single address.

The original standard was developed in 1942 to provide a minimum quality of cotton and rayon velours used chiefly in the manufacture of upholstered furniture. The present edition was undertaken at the request of the Upholstery and Drapery Fabric Manufacturers Association, Inc., to cover a higher quality of this material as a minimum standard of the industry. The standard includes requirements for weight of finished fabric, weight and density of pile, construction of fabric back, colorfastness, and resistance to

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wear. Provision is also made for methods of test and for certifying and identifying materials conforming to the standard.

### European Industry Moving Toward Come-Back

European industry is moving realistically toward a come-back in world markets, it was stated by H. R. Austin, president of the M. W. Kellogg Co., engineers of New York City, who arrived home recently after a tour of the chief industrial centers of Great Britain, France and Belgium. Pointing out that his observations were limited to the oil refining, chemical and textile industries, Mr. Austin said that he was deeply impressed by the courage with which management and workers alike are approaching the grim task of rehabilitation.

Said Mr. Austin: "They have the 'know-how' but not the wherewithal—the will and the willingness but not the means to complete the task without outside help. I am sure that anyone who had the opportunity to sit down with European industrialists and discuss their problems frankly, would feel reassured as I do that our country is on the right course with the Marshall Plan. The Marshall Plan as Britain sees it is 'the quart of water' that will permit them to start their productive pump going—they must and will carry on from there."

Mr. Austin was accompanied on his trip by Alexander Kidd, vice-president in charge of fabrication. Mr. Kidd, who directed the three years development work which resulted in the recent introduction of the Kellogg loom, is now in charge of the company's textile equipment fabrication program. He went abroad to study at first hand the weaving equipment needs of European textile manufacture, and to analyze the various problems involved in making deliveries of the Kellogg loom to that market.

"One of the prime purposes of this trip abroad," Mr. Austin explained, "was in connection with our company's present and planned activities in the textile machinery field. I visited plants to observe the different types of machinery and was especially interested in the newest processes for making yarns. In this field, I was impressed by the Nelson continuous process for the production of rayon yarns.

"The whole horizon of technical development in the European textile field is one that our company is studying closely. Our interest spreads through the entire field from the spinning of the yarn to the weaving of the cloth. The extensive Kellogg engineering facilities, and research and development laboratories provide a background which we feel leads us logically toward further expansion in the textile machinery field, both at home and abroad."

Mr. Austin's trip followed shortly after the company's announcement of the new Kellogg loom, and he studied British loom operations closely during his mill visits abroad.

"I saw practically no automatic looms over there," he said. "All the industry leaders I met indicated that they fully recognize the value and advantages of the automatic loom, and the fact that changing the filler material by hand represents a serious economic handicap." Despite this appreciation of the value of new type looms, Mr. Austin does not look for any immediate volume purchase of this kind of equipment by British mill owners.

"The issue as to their replacing present looms with automatic," he said, "is pre-eminently a financial one. It has two aspects: First, until the exchange situation improves,

they cannot make any big investment in this direction and second, the present looms are both completely depreciated and are still producing satisfactory cloth." Mr. Austin said this pointed away from an immediate appreciable export market for the Kellogg loom in Europe; therefore, he said, his company now is studying the possibility of having the loom manufactured in Great Britain on a license basis.

Recent news of textile projects in Puerto Rico, Haiti and China, follows:

Contracts have been signed by the Puerto Rico Industrial Development Co. and Beacon Textiles, Inc., providing for the construction of a \$1,500,000 plant in Puerto Rico that will add an annual payroll of more than \$300,000 to the economy of the Island and create a five million dollar industrial unit for Puerto Rico. Announcement to this effect was made by Teodoro Moscoso, Jr., president and general manager of the Development Co., following confirmation by the Beacon principals, Stephen C. Owen, and Charles C. Owen, Jr., active heads of the Beacon Mfg. Co., parent company which was organized in 1896 and is one of the oldest manufacturers of blankets and blanketings in the United States. Headquarters of the company are in New York but factories are operated at Westminster, S. C., and at Swananoa, N. C.

Under the terms of the Puerto Rico contract, whereby Beacon becomes the first blanket factory to establish on the Island, the Puerto Rico Industrial Development Co. will advance the sum of approximately \$700,000 for factory and site, while Beacon will spend an additional \$800,000 for machinery and equipment. Provisions call for a factory providing 100,000 square feet of floor space sufficient for installation of at least 100 looms. It is expected that the plant will be able to handle 50,000 pounds of raw cotton weekly, shipped from southern U. S. A. markets to be processed into blankets and blanketings. Bulk of the estimated five million dollar annual production will be marketed in continental U. S. A. although some of the items will be sold in local Puerto Rico markets as well. Surveys for the plant site, to be located on the eastern shore of Puerto Rico, will be finished shortly, and soil bearing tests as well will be completed before construction is started. The Development Co., under the contract, will provide all engineering, survey and construction services, working in co-operation with Beacon's own engineers.

The first cotton mill in Haiti was put into operation a few months ago at Port au Prince by Filature Tissage & Confection. The mill was designed by Lockwood Greene Engineers, Inc., Spartanburg, S. C., office. The buildings are built for a 10,000 spindle spinning and weaving mill on coarse goods—osnaburgs, denims, etc. At present more than half the spinning is installed and about 300 of the 400 ultimate looms. The owners plan to complete the machinery installation as fast as they can train the help for it.

The mill is equipped for chain dyeing of warp yarns for indigo dyed goods, denims, etc. Native cotton is used entirely which grows on trees ten to 15 feet high, which keep on growing continuously, as there is no Winter season. It is interesting that some of the cotton is reddish pink in color and some some white. For the first time this mill gives the island the opportunity to use this native product on the island for cotton cloth consumed there.

The plant consists of four principal buildings: (1) Spinning and weaving mill 122 by 632 feet—one story. (2) Dye house for indigo dyeing 122 by 182 feet. (3) Opener

room 60 by 90 feet. (4) Power house 60 by 90 feet. All of the buildings are steel frame with corrugated asbestos roofing. The walls are of native concrete block with steel sash. Floors are concrete, on ground.

A British firm has secured the first contract from China for the erection of a complete rayon spinning plant valued at about \$3,000,000. According to the announcement by Platt Bros. (Sales), Ltd., of Oldham, Dobson & Barlow, textile machinists of Bolton, secured the order.

Plant capacity will be 2½ tons daily of continuous filament yarn spun by the Nelson process. The contract includes auxiliary equipment, preparation, and after-treatment machinery, air-conditioning, water treatment and refrigeration. Delivery of machinery is to commence in 15 months, and to be completed within two years.

From three widely-separated parts of the globe come reports of other new textile projects. New Zealand's first cotton textile plant is to be established at Riccarton near Christchurch. In Russia, a new textile combine is in an advanced state of construction at Gori, Joseph Stalin's birthplace. This plant, described as "one of the largest," will start production in 1949 with the putting into operation of 15,000 spindles.

The Union of Burma, through its ambassador, I. So Nyun, has employed Lockwood Greene Engineers, Inc., New York City, as consulting and supervisory engineers for erection and layout of that country's first cotton spinning and weaving mill, which will cost about three million dollars when completed, it is learned.

The plant will be equipped with 20,000 spindles. A contract has been signed with H. & B. American Machine

Co. for the spinning equipment. Deliveries are to be made in the last quarter of 1948. The plant will be modern in every respect, it is said, with the latest types of machinery and other equipment.

The Union of Burma, which recently attained full independence, has announced its intention of providing the country with new and urgently needed industrial plants, including those used for the manufacture of caustic soda, chlorine and sulphuric acid.

### Western States Seek Woolen Mills

Sylvan J. Paley, president of the National Wool Growers Association, recently expressed the belief that the wool-processing industry in the West would develop first in California, skipping the wool-producing states of the Rocky Mountain area. Speaking at the fourth annual National Forum of Labor, Agriculture and Industry at the University of Wyoming, Mr. Paley pointed out that California was expanding rapidly in population and industrially. The industrial growth included the clothing industry, which, he declared, indicates possibilities of becoming a top style center.

Mr. Paley's opinion, however, is in sharp contrast to that of leaders in the Rocky Mountain States, who are laying plans to attempt to break the Eastern textile front and place processing plants in the wool-producing area. An organization of state officials and business men from New Mexico, Colorado, Wyoming, Montana, Idaho and Utah has been formed to plan to encourage the development of the wool-processing industry in those states.

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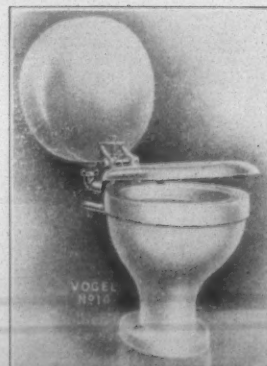
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## Cotton Goods Activity Levelling Off

As cotton prices ease downward to government-support levels, partly at least as a consequence of the bumper crop report, there are indications that the industry is working back to a supply-demand basis. It also is apparent that some expectations of lower prices on finished cotton goods are based on the belief that profit margins will be shaved to maintain volume.

At present, cotton mills are anxious not to overproduce themselves into price dilemmas. Scattered reports disclose that here and there mills are cutting work weeks, a few are closing, and more are considering other means of curtailing their production. They profess to see no other way out in the fact of high costs recently increased by an eight per cent wage boost.

Undoubtedly the industry's distribution problem has not been alleviated by the sharp drop in exports which it has experienced this year. A year ago exports drained off 14 per cent of the nation's cotton goods output. This year, exports may not amount to much more than seven per cent. As compared with 1939's four per cent export figure, the current rate seems healthy enough until one takes into consideration the post-war rise in total output.

Another telling factor is mounting consumer resistance to cotton goods prices. Immediately after the war urgent needs were covered, prices notwithstanding. Today the consumer's attitude is far different. When the consumer won't buy the retailer won't order, the manufacturer won't cut and the mill won't speculate in gray goods. Meanwhile, weaker hands liquidate enough piece goods and garments to harden consumer resistance to regular lines.

Mill interests are said to be fairly confident that when inventories are further depleted retailers will resume buying normal quantities. They also are of the opinion that the present lull is temporary and will be followed by sustained consumer demand. Both these eventualities are counted upon to firm prices and blow the industry out of its becalmed state in fine and certain other goods.

## Large Cotton Crop Is Predicted

The Bureau of Agricultural Economics estimated this month that the 1948 cotton crop will total 15,169,000 bales. This would be the seventh largest cotton crop on record and exceeds production in any year since 1937. It is about 3.3 million bales more than the 1947 crop and 3.2 million bales more than the ten-year average. The forecast is based on information as of Aug. 1.

Recent private crop estimates placed this year's crop at from 13.2 million bales to 14 million bales.

B. A. E. predicts a record yield per acre of 313.5 pounds. This is 14.6 pounds above the previous high registered in 1944. The unusually high yields in prospect this season,

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B. A. E. said is due to increased use of fertilizer, exceptional growing conditions, and a larger proportion of the cotton acreage being planted in high yield areas. Lint yield for the 1947 crop was 267.2 pounds per acre.

Acreage for harvest this year is computed at 23,223,000 acres, assuming average abandonment of current acreage. This is about two million acres more than were harvested last year and compares with 17,615,000 acres harvested in 1946. Average for the 1937-46 period was 22,631,000 acres.

The agency said that hot, dry weather in June and early July was very favorable for holding boll weevils in check. It was stated that the soil moisture, however, was adequate for growth and fruiting and the crop made excellent progress.

### Cotton Use Reflects July Slowdown

The Census Bureau has reported that 627,393 bales of lint cotton were consumed during July, compared with 801,142 bales during June of this year and 677,780 during July of 1947. Consumption for the 12 months ended July 31 totaled 9,346,825 bales, compared with 10,024,811 for the corresponding period a year ago.

Cotton spindles active during July numbered 21,328,000 compared with 21,479,000 in June this year and 21,383,000 during July last year. Broken down, this shows 16,832,000 in cotton-growing states, compared with 16,915,000 for June this year and 16,692,000 for July last year; and 4,085,000 in New England states, compared with 4,157,000 and 4,237,000.

Lint cotton on hand July 31 included: in consuming establishments, 1,471,644 bales compared with 1,406,094 a year ago; in public storage and at compresses, 1,335,996 and 904,028.

### Distribution Of Cotton Shows Drop

Domestic and export distribution of American cotton in the season ended July 31 was about 2,200,000 bales lower than in the 1946-47 season, the New York Cotton Exchange Service Bureau has reported.

The bureau estimated total domestic consumption at 9,325,000 bales compared with 10,025,000 bales in the preceding year, and exports at 2,050,000 bales against 3,545,000 in the 1946-47 season.

The report added that with supply in the season just ended 7,750,000 bales lower than in the preceding year, the carryover in all hands on July 31 was only about 470,000 bales higher than a year previous. It is estimated at 3,000,000 bales compared with 2,530,000 on July 31, 1947.

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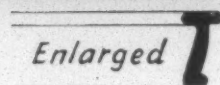
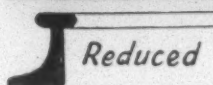
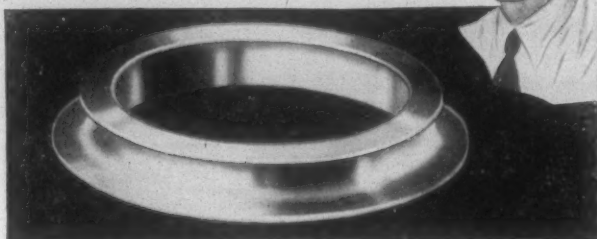
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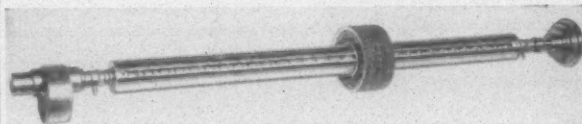
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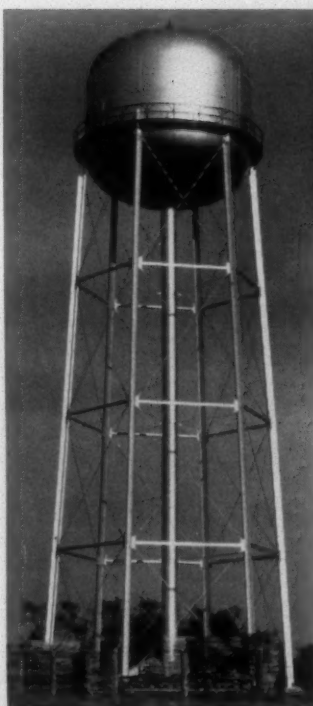
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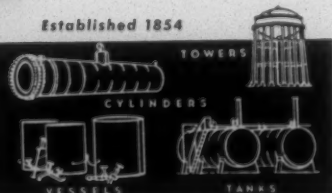
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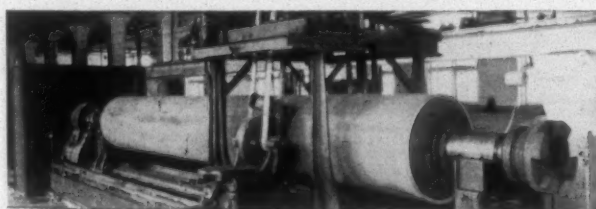
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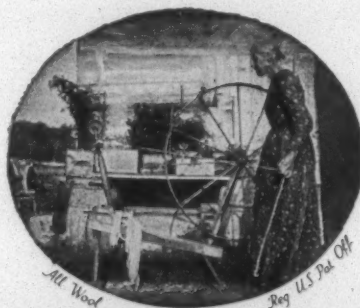
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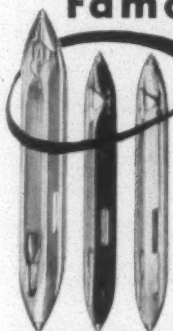
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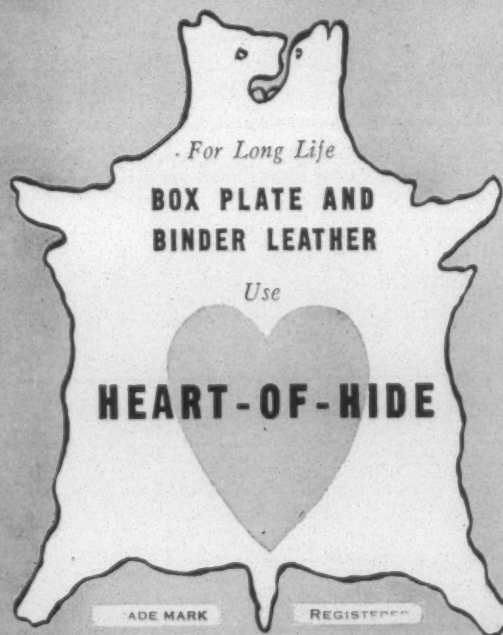
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**CAROLINA BELTING COMPANY**

P. O. Box 1377 • 26 Augusta Street  
 GREENVILLE, SOUTH CAROLINA

# Before Closing Down

—TEXTILE INDUSTRY HAPPENINGS AS THE MONTH ENDED—

## TEXTILE TESTS UNCHANGED

Textile industry testing standards of 65 per cent relative humidity and 70° F. temperature will continue to be recognized in government procurement under a resolution adopted Aug. 18 by the Federal Specifications Board. The announcement, made in a letter from Willis S. MacLeod, executive vice-chairman of the board, to George S. Buck, the National Cotton Council's technical service director, followed a meeting at which the board approved a general standard laboratory testing conditions for most other materials at 50 per cent relative humidity and 73.5° F. temperature.

Textiles were exempt from the recommended general standard along with time pieces, gauges, and other precision instruments, and tests involving organisms, seed germination, and similar biological problems. Materials, including textiles, intended for use under unusual service temperatures and humidities would be tested under the particular conditions to be encountered. The board's recommendations will be sent to the director of the Bureau of Federal Supply, Clifton Mack, for promulgation.

The action by the board settles a prolonged discussion over the question of tex-

tile standards, first brought to the fore when a board subcommittee, in July, 1947, recommended that the general standard of 50 per cent relative humidity and 73.5° F. be established for testing practically all materials, including textiles, under government procurement. An overwhelming majority of textile industry representatives opposed the recommended change, pointing out that a large and valuable amount of data had been accumulated on the basis of the old standards which had been long established in this country and were in general use throughout the world. This information, which resulted from many years of research, would have to be discarded, they said, if new standards were adopted. They also pointed out that textile fibers were peculiarly sensitive to atmospheric moisture and that standard testing conditions, offering the greatest simplicity in attainment and maintenance and agreeing closely with the actual conditions under which textile fibers must be processed, had been adopted for this reason. The fact that the textile standard on relative humidity and temperature had been used so long and so successfully throughout the world, was ample proof, they contended, of the suitability of these standards to textile operations.

More than 40 representatives of textile manufacturing firms, trade associations, and interested government departments met in Washington in March, 1948, to discuss the proposed change. The meeting, sponsored by the National Cotton Council, unanimously adopted a resolution opposing a change in the established testing standards. At that time Mr. MacLeod expressed appreciation for the views of the textile representatives and stated that very careful consideration would be given to them. At the meeting of the technical committee on textiles of the International Standards Organization, held in Buxton, England, in June, representatives of 13 nations unanimously indorsed 65 per cent relative humidity as the international testing condition.

## PERSONALS

A. S. Cooley, for years widely known as Charlotte, N. C., manager for American Aniline Products, Inc., was the guest of honor Aug. 19 at a testimonial dinner which marked his retirement from the organization. The dinner, which was held in the Barringer Hotel, Charlotte, was arranged by Mr. Cooley's associates. The feature of the evening was the presentation to Mr. Cooley by G. L. Armour, executive vice-president of the firm, of an engraved gold wrist watch as "testimony of his many years of loyal and faithful service." Numerous telegrams of congratulation and good wishes were read during the dinner. Members of the company's Southern sales staff were present along with representatives from the executive offices in New York City. Mr. Cooley makes his home at 1940 Shoreham Drive,

Charlotte. He has been succeeded as Charlotte branch manager by J. Harvey Orr, for 15 years an A. A. P. salesman in the area.



R. M. (Dick) Salisbury, left, is assuming for Textile Specialty Co. of Greensboro, N. C., the South Carolina territory and that part of North Carolina area formerly covered by the late Fred A. Decker. Mr. Salisbury is a 1948 graduate of the North Carolina State College School of Textiles. He completed his studies there after serving three years in the Army, 1½ years of which was spent in France and Germany. His residence is at 119 Third Avenue, Gastonia, N. C.

Dr. Frank H. Reichel, president of American Viscose Corp., has been elected a trustee of Allegheny College at Meadville, Pa.

## MILL NEWS

MAGNOLIA, ARK. — The Magnolia Division of N. & W. Overall Co., Inc., oldest cotton mill in this vicinity, is being doubled in size. Production capacity will be increased correspondingly.

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## IMPORTANT NOTICE FOR A. A. T. C. C. MEMBERS

L. E. Whittelsey, assistant chairman of the registration and reception committee, reports that many of the unusually large number of advance registrations for the annual A. A. T. C. C. convention this Fall are being received with either the registration card or registration envelope omitted or not properly filled out. This necessitates additional correspondence and causes confusion and delay. American Association of Textile Chemists and Colorists members therefore are urged to supply all the information requested on the registration card, registration envelope and hotel reservation blank, then return all three to Mr. Whittelsey (Augusta Chemical Co., P. O. Box 660, Augusta, Ga.) with check covering registration, dinner fees, etc. The convention will be held at the Sheraton-Bon Air Hotel, Augusta, Ga., Oct. 21-23.



# HUNT

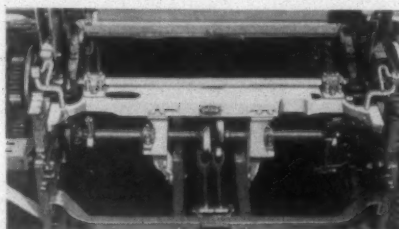


## EQUIPMENT FOR MODERN WEAVE ROOMS

The craftsmen and engineers at Hunt Machine Works strive constantly for improvement in design and performance of textile machinery and equipment. The weave room machinery shown here represents the latest in tried and proved equipment.

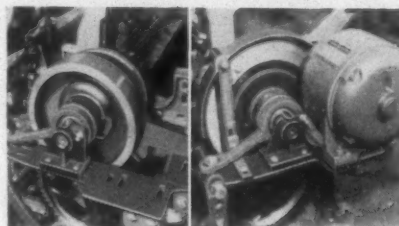
### HUNT SPREADERS

When added to looms practically any make or size, patented Hunt Spreaders make possible greater stability, fabric of better quality and increases up to 36 picks per minute in output.



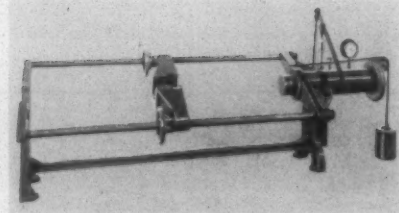
### FLYWHEEL AND MOTOR DRIVES

Hunt belt-driven flywheel drives are particularly efficient when installed with Hunt Spreaders on older model looms. Hunt Motor Drive features latest model loom motors, directly attached to loom side. Features ball thrust bearings.



### HYDRAULIC PRESSES

Model Y-20 has 20-ton capacity and will swing a 24-inch pulley. Model Y-30 has 30-ton capacity and will swing 32-inch pulley. Furnished either for hand operation or combination of motor drive and hand operation.



Hunt Rebuilt Looms will be prominently featured at the Southern Textile Exposition, Greenville, S. C., October 4th-9th, 1948. We will also show the above illustrated machinery and many other Hunt products. Look for our three booths—Nos. 128, 129 and 130.

## HUNT MACHINE WORKS

INCORPORATED

GREENVILLE, SOUTH CAROLINA

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# THE HANDY WAY TO COUNT...

## Hand-Operated Counters



### **VEEDER-ROOT Hand Tally**

It pays to keep one of these handy counters with you every time you go out in the mill, because:

1. You can take an accurate count of the number of looms you see out of operation.
2. You can take an accurate count of the number of ends-down you notice.
3. You can keep a quantity-check on many other phases of mill operation which will help you keep closer *Control* of efficiency and costs.

Veeder-Root Hand Tally fits neatly into your pocket, fits comfortably in your hand; registers one count for each pressure of thumb lever. Resets to zero with one turn of knob. *Order today.*

### **VEEDER-ROOT COUNTERS**

### **VEEDER-ROOT Clutch Speed Counter**

It also pays to keep one of these No. 21 Speed Counters with you when you go out in the mill, because:

1. You can easily make a spot-check on the speeds of spinning frame shafts and front rolls.
2. You can easily make a spot-check on the speeds of loom cranks shafts.
3. You can readily check the speed of any motor or engine shaft.

Veeder-Root Clutch Speed Counter comes with steel point, plus attachable rubber point and suction cup. Press point or cup against revolving shaft... time one minute on your own watch. Remove counter from shaft and the direct counter reading is correct RPM.

### **VEEDER-ROOT INC.**

HARTFORD 2, CONNECTICUT · GREENVILLE, SO. CAROLINA

Offices in: Boston, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Montreal, Buenos Aires, Montevideo, Mexico City. In England: Veeder-Root Ltd., Dickinson Works, 20 Purley Way, Croydon, Surrey. In Canada: Veeder-Root of Canada, Ltd., Montreal.

**MAKERS OF 2-3 CONVERTIBLE PICK, HANK, YARDAGE, AND KNITTING COUNTERS**



# APPRATEX 84

Reg. U.S. Pat. Off.

## ANIONIC SUBSTANTIVE SOFTENER FOR CELLULOSIC FABRICS

Appratex 84, a result of Warwick research, is a new, substantive softener of exceptional stability. It will not oxidize on the fabric to cause discoloration or rancidity. Appratex 84 will not discolor white goods, develop undesirable odors after ageing or hot pressing, and has no adverse effect on the light-fastness of dyeings.

This substantive softener may be exhausted onto cellulosic fabrics from a dilute solution. The finish thus obtained shows a considerable degree of resistance to laundering. Appratex 84 is compatible with other anionic finishes and alkaline material—especially important when combining with antifume agents and many other types of material.

**A WARWICK technical advisor is always available to help work out special problems in connection with individual needs.**

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